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NCPTT NOTES

National Center for Preservation Technology and Training

UNITED STATES DEPARTMENT OF THE INTERIOR • NATIONAL PARK SERVICE

FALL SUPPLEMENT 1998
NUMBER 28

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Preservation Technology and Training Projects and Grants — 1994-1998 in review

NCPTT presents results of its work in supplements to NCPTT Notes twice annually — a review of Preservation Technology and Training Publications published most recently as Notes Spring Supplement 1998, and a review of the Preservation Technology and Training Grants. This year's Notes Fall Supplement takes a wider view of NCPTT's work, including Preservation Technology and Training Projects initiated in-house along with work completed under the competitive PTTGrants program.

The National Park Service, the Preservation Technology and Training Board and NCPTT are pleased to present the fourth annual summary of work undertaken in NCPTT's grants program, and to introduce the work completed in the past four years under NCPTT's projects program.

NCPTT's Preservation Technology and Training Grants program remains NCPTT's most prominent means of stimulating new ideas in preservation and conservation technologies. But NCPTT recognizes that a rigorous competitive program such as PTTGrants may not address all of the preservation community's current needs nor allow important projects begun under the PTTGrants program to continue or expand. As a complement to the PTTGrants program, NCPTT's Preservation Technology and Training Projects program builds on the professional strengths of NCPTT's staff and takes a long-range view towards building the preservation community's technical resources.

The value of PTTProjects and PTTGrants in fiscal years 1994-1998 totals over $6 million — with an approximately even split overall between projects and grants. In fiscal year 1998, the value of PTTProjects totaled approximately $900,000. In fiscal year 1998, the PTTGrants program received 150 proposals; 24 PTTGrants were awarded, totaling approximately $755,000. The PTTGrants program continues to support work in the eight project types first described in 1997, and readers should see page 2 of this edition of *Notes* for details of the 1999 PTTGrants program.

Partnerships with the preservation community and the tangible results of the PTTProjects and PTTGrants programs are particularly important accomplishments for NCPTT. NCPTT invites participation in its work and welcomes readers' review and comments on the direction of its PTTProjects and PTTGrants programs.

— **Katherine H. Stevenson**
Associate Director, Cultural Resource Stewardship and Partnerships

— **Dr. Elizabeth A. Lyon**
Chair, Preservation Technology and Training Board

— **John Robbins**
Executive Director, NCPTT

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Comments and items of interest for the next newsletter send to NCPTT's publications manager, Sarah B. Laster.

1999 PTTGrants Call for Proposals

The National Center for Preservation Technology and Training has issued its 1999 call for proposals for NCPTT's Preservation Technology and Training Grants program. The PTTGrants program has awarded over $500,000 each year since 1994 for innovative work in research, training and information management on technical issues in historic architecture, archeology, historic landscapes, objects and materials conservation, and interpretation. Grants are available in eight categories —

- Information management
- Training and education
- Applied/fundamental research
- Environmental effects of outdoor pollutants
- Technology transfer
- Analytical facility support
- Conference support
- Publications support.

Application deadlines are mid-December 1998, as specified in the call for proposals. The *1999 PTTGrants Call for Proposals* is available via —

E-mail	Send a blank message to <pttgrants@ncptt.nps.gov> and the call for proposals will return automatically.
Fax-on-demand	Call 318/357-3214 and follow the recorded instructions to receive a catalog of documents that includes the call for proposals.
Web	Visit <www.ncptt.nps.gov> and click on "Preservation Technology and Training Grants."
Brochure	Request a printed call for proposals by sending an e-mail message to <ncptt@ncptt.nps.gov>, telephoning 318/357-6464, or writing NCPTT, NSU Box 5682, Natchitoches, LA 71497.

PTTGrants are funded by Federal appropriation; awards are subject to availability of funds.

Historic Landscapes Research — Special Topics for the 1999 PTTGrants Program

As part of the 1999 PTTGrants program, NCPTT encourages submissions of proposals that address issues in historic landscapes research, including —

- Database development
- Interface of natural and cultural resources in historic landscapes
- Interpreting landscape processes
- Landscape construction technology and techniques
- Effects of historic advances in technology on landscapes
- Vegetation management
- Impact of modern standards on historic landscapes
- Technology transfer

In *NCPTT Notes* 26, these issues are described further (page 3) and are incorporated into the 1999 PTTGrants Call for Proposals as described in the addendum (page 2).

For more information on the historic landscapes research special topics, contact NCPTT Research Coordinator Mark Gilberg.

Preservation Technology and Training Projects: 1994-1998

PTTProjects

NCPTT-wide

NCPTT Executive Director John Robbins is responsible for these projects.

169. Developing Statewide Preservation Organizations

Partner National Trust for Historic Preservation, Washington, DC

Project initiated 1996

Project ongoing

Through a cooperative agreement with the National Trust, NCPTT contributes to the National Trust's Statewide Partnerships program that encourages the creation and growth of capable non-profit preservation organizations in each state.

NCPTT has two chief goals for this project — developing an important audience for NCPTT's work and developing statewide organizations' understanding and abilities in technical aspects of preservation. In 1998, NCPTT funds supported four technical projects proposed by statewide organizations —

- Montana Community Team Project
  Montana Preservation Alliance
- Internet training for nine statewide organizations
  Preservation New Jersey
- Demonstration heritage education project
  Preservation Alliance of West Virginia
- Survey and evaluation of Louisiana's heritage education programs
  Louisiana Preservation Alliance

168. Save Outdoor Sculpture!: Louisiana Survey

Partner Louisiana State University, Baton Rouge, Louisiana

Project initiated 1994

Project completed

The nationwide SOS! program has two objectives: to inventory outdoor sculpture throughout the US, and to encourage the conservation of outdoor sculpture. Through a cooperative agreement with Louisiana State University, NCPTT coordinated the northern Louisiana SOS! inventory. Activities included volunteer training workshops and SOS! data entry for the Inventory of American Sculpture — <www.siris.si.edu> — and statewide online databases — <www.sos.lsu.edu>. NCPTT also entered the New Orleans SOS! survey information on the statewide database.

PTTProjects

Information Management

NCPTT Information Management Coordinator Mary Carroll is responsible for these projects.

167. Creating, Maintaining and Sharing Historic Resource Surveys on the Internet

Partner University of Houston, Houston, Texas

Project initiated 1997

Project in progress; anticipated completion Winter 1998-1999

The Center for Historic Architecture at the University of Houston, in partnership with NCPTT, is nearing completion on the project "Creating, Maintaining and Sharing Historic Resource Surveys on the Internet." The how-to manual has been submitted to NCPTT for review and comments and is available at <www.arch.uh.edu/survey>. The final report is in preparation.

166. Internet Communications Survey

Partner Louisiana State University, Baton Rouge, Louisiana

Project initiated 1996

Project completed; results published —

Louisiana State University–Office of Community Preservation. *NCPTT Internet Communication Survey Report*. Natchitoches, Louisiana: NCPTT. 1997. [PTTPublications No. 1997-25] (NCPTT's Training and Information Management components collaborated on this project.)

165. Developing NCPTT's Preservation Technology and Training Internet Services

Project initiated 1994

Project ongoing

PTTInternet will enhance NCPTT's leadership in electronic dissemination of preservation information. A major focus of PTTInternet is the continuing development of NCPTT's Web site to deliver preservation information and NCPTT project results to the preservation community.

Phase 1 — design of the graphical user interface and development of static site content, including descriptions of NCPTT, its mission, components, programs and advisory board — is completed.

Phase 2 included designing databases that will replace the gopher-based Resources section and implementing one prototype database. Database system design is completed and conversion of "Internet Resources for Heritage Conservation, Historic Preservation and Archeology" to the Preservation Internet Resources Database is near completion.

Phase 3 will implement other databases in the system.

Phase 4 will add functionality to the Web site and target a smaller audience — a PTTCommunity.

164. Supporting and Developing the National Trust Library

Partner University of Maryland, College Park, Maryland

Project initiated 1994

Project in progress

The National Trust Library is a special collection at the University of Maryland devoted to historic preservation materials. The core of the collection is a 12,000-volume donation by the National Trust for Historic Preservation in 1986. The collection has grown through acquisition and donation, including recent significant donations by Charles E. Peterson, FAIA and the estate of Charles Hosmer.

Through a cooperative agreement between the National Park Service and the University of Maryland, NCPTT supports NTL's work of accessioning, cataloging and abstracting. NCPTT and NTL also are collaborating on a review of the collection's role in the national and international network of preservation information providers.

Training and Education

NCPTT Training Coordinator Frances Gale is responsible for these projects.

163. Developing a Preservation Arts High School

Partner Center for Architecture and Building Science Research, New Jersey Institute of Technology, Newark, New Jersey

Project initiated 1998

Project in progress; results published —

Ottavino, K.B., and E. Ehrenkrantz. *Preservation Week Report: The High School for the Preservation Arts Project*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-23]

Towards developing a preservation curriculum for high school students, NCPTT supported Preservation Week events at the High School of Arts and Business in Queens, New York. Working with the New York City Board of Education, the Center for Architecture and Building Science Research at New Jersey Institute of Technology provided a report documenting this pilot project. Following Preservation Week, the project continued with students and selected teachers participating in a summer internship that included hands-on training.

Also see *NCPTT Notes* 26, p. 5.

162. The Conservation of Outdoor and Indoor Sculpture and Monuments Through a Conservator's Eye

Partners
Brookgreen Gardens, Murrells Inlet, South Carolina
Save Outdoor Sculpture!, Washington, DC
Southeastern Museums Conference, Baton Rouge, Louisiana
North Carolina Museums Council, Raleigh, North Carolina
South Carolina Federation of Museums, Columbia, South Carolina
Association for the Preservation of Historic Natchitoches, Natchitoches, Louisiana

Project initiated 1997

Project completed; results published —

Brostoff, L., and R. de la Rie. "Conservation Treatments; Methods, Options and Research, paper presented to *The Conservation of Outdoor and Indoor Sculpture and Monuments Through a Conservator's Eye* workshop, Brookgreen Gardens, Murrells Inlet, South Carolina, August 21-23, 1997. (Also see entry 26)

161. Heritage Education Survey

Partner Center for Historic Preservation, Middle Tennessee State University, Murfreesboro, Tennessee

Project initiated 1996

Project completed; results published —

Hankins, C., and T. M. Mielnik. *Focus on 2000: A Heritage Education Perspective*. Murfreesboro, Tennessee: Center for Historic Preservation, Middle Tennessee State University. 1997. [PTTPublications No. 1997-08]

160. NCPTT's Training Database

Project initiated 1996

Project ongoing

NCPTT has developed a database of preservation training and education that currently contains information on over 400 organizations and institutions that offer preservation programs and courses. The database benefits both the training and education audience, and training and education providers. The database is maintained by regular review of entries, and by continuing to build sources of entries through NCPTT's expanding library of undergraduate and graduate program catalogs.

Conservator-guided tour at Brookgreen Gardens, Murrells Inlet, South Carolina, site of the 1997 sculpture conservation workshop; see entry 162

159. Preservation Weekend Workshops

Partners
Texas Historical Foundation, Texas State Historic Preservation Office and University of Texas-Austin, Austin, Texas
Colorado Preservation Inc., Denver, Colorado

Project initiated 1996

Project completed

The Preservation Weekend workshop in Austin, Texas, provided historic property owners and managers with information vital to purchasing, researching, and maintaining their properties. The workshop demystified such topics as project financing, applying for tax credits, and dealing with historic district commissions. The Saturday afternoon workshop sessions showcased preservation craftspersons who demonstrated limestone repair, stained glass restoration, metal and woodwork restoration, and other trades essential to preserving our architectural heritage. Thirty-eight participants attended the workshop, including four members of the Texas Historical Commission.

NCPTT partnered with Colorado Preservation, Inc. for the second Preservation Weekend workshop. Held in Denver, over 400 people participated in CPI's *Saving Places, Preservation Strategies for the 21st Century* conference. NCPTT provided support for technical sessions on building preservation.

158. Preservation Leadership Training Workshop

Partners
National Trust for Historic Preservation, Washington, DC
Association for the Preservation of Historic Natchitoches, Natchitoches Historic Foundation, and Main Street Natchitoches, Natchitoches, Louisiana

Project initiated 1996

Project completed

Preservation Leadership Training workshops address fundamental issues facing preservation leaders nationwide. The 1996 and 1997 workshops in Natchitoches, Louisiana included topics ranging from community and organizational leadership to preservation politics and economics. Through team projects, participants applied information from PLT educational sessions in solving practical problems.

Participants in the 1996 workshop focused on preservation challenges in the city of Natchitoches; the 1997 workshop examined issues in the Cane River Creole National Historical Park and Cane River National Heritage Area. PLT participants represented private, nonprofit preservation organizations, city and county planning offices, State Historical Preservation Offices and Main Street programs.

157. Preserving the Past and Building the Future: A Conference for Architects and Conservators

Partners American Institute of Architects – Historic Resources Committee and American Institute for Conservation of Historic and Artistic Works – Architecture Specialty Group, Washington, DC

Project initiated 1996

Project completed

The AIA Historic Resources Committee and the AIC Architecture Specialty Group conducted a joint meeting hosted by NCPTT in Alexandria, Louisiana. The meeting promoted discussion about the roles of architectural conservators and preservation architects and how they might collaborate on preservation projects.

Three sessions comprised the conference: Value Added: What the Conservator Brings to a Team; Appropriate Preservation Technology; and Case Studies: Innovative and Exemplary Collaborative Projects. Participants from 33 states, the District of Columbia, Canada, Puerto Rico and the West Indies attended.

156. Saving Historic Architecture and Antiques Workshop

Partners National Park Service – Natchez National Historical Park, Natchez, Mississippi

Association for the Preservation of Historic Natchitoches, Natchitoches, Louisiana

Project initiated 1996

Project completed

This workshop was one in a series sponsored by the National Park Service to assist preservation efforts in seven states in the Lower Mississippi Delta region. Held at APHN's Melrose Plantation, the workshop addressed the proper care of historic buildings and their contents. Sessions addressed environmental threats to museum collections and the use of proper materials for housekeeping in historic properties. Thirty-eight participants from Louisiana attended this workshop, including representatives of preservation organizations, museum personnel, and homeowners from north and central Louisiana.

155. Archeology for Managers Workshop

Partner National Park Service – Archeology and Ethnography, Washington, DC

Project initiated 1995

Project completed

This course was designed for Federal, state, and local managers with little or no background in archeology; but whose responsibilities include managing archeological resources. The workshop was directed at familiarizing participants with archeology and archeological resources, promoting the development of efficient resource management programs, and explaining policies, guidelines and regulations concerning archeological preservation.

Twenty-six participants attended the workshop including six members of Indian tribes or organizations, two from Federal agencies, five from military complexes, nine from state parks, and one each from a museum, historic preservation office, and highway department. Minnesota, Texas, Louisiana, Tennessee, Oklahoma, Arkansas, Wisconsin, New Mexico, California, Illinois, Utah, Montana, District of Columbia and Puerto Rico were represented.

154. Heritage Area Workshop

Partner Northwestern State University of Louisiana, Natchitoches, Louisiana

Project initiated 1995

Project completed

The workshop addressed researching the history and cultural resources of heritage areas, using Cane River Creole National Historical Park and Cane River National Heritage Area as the local case studies. Emphasized topics included the Creole community of Isle Brevelle, the African-American culture in Natchitoches and along Cane River before and after the Civil War, Native American influence, and architecture within the Natchitoches Historic District — all towards an holistic understanding of the region's broad continuum of history. Twenty-seven participants attended the workshop, representing six states — Louisiana, New York, Florida, Mississippi, Oklahoma and Texas.

153. International Internships

Partner United States Committee/International Council on Monuments and Sites, Washington, DC

Project initiated 1995

Project ongoing

US/ICOMOS' International Summer Intern Program provides training and work opportunities for preservation professionals in exchanges among 46 nations. Each year, NCPTT contributes support for interns and program administration, and has assisted US/ICOMOS in publishing the following program and project documentation —

United States Committee/International Council on Monuments and Sites. *1995 & 1996 US/ICOMOS International Summer Intern Program Final Report*. Natchitoches, Louisiana: NCPTT. 1997. [PTTPublications No. 1997-24]

——. 1997 *US/ICOMOS International Summer Intern Final Report*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-24]

152. NAGPRA Workshop

Partner National Park Service – Archeology and Ethnography, Washington, DC

Project initiated 1995

Project completed

This workshop educated participants about NAGPRA, including interpreting and complying with the law in a timely and meaningful manner. Participants learned about potential problem areas, compliance time limits, and how to avoid court intervention. Representatives of Native American tribes including Tunica-Biloxi, Zuni, Oneida of Wisconsin, Chitimacha, Caddo and Jicarilla Apache attended the workshop. Representatives of the Oklahoma Museum of Natural History, the Plains Art Museum, the Museum of Texas Tech, the Museum of the Great Plains, US Army Corps of Engineers, US Marine Corps, US Air Force, US Forest Service and the Federal Energy Regulatory Commission also participated.

151. Soils Workshop

Partner Northeast Louisiana University, Monroe, Louisiana

Project initiated 1995

Project completed

This three-day workshop was conducted for archeologists and soil scientists in Arkansas, Louisiana and Mississippi. The goal was to train practitioners in both disciplines to recognize, describe and sample soil from earthen mounds. The workshop promoted collaboration in collecting data from endangered mound sites in the three-state area. Forty-one participants attended the workshop with four from the Arkansas Department of Transportation, four from US Army Corps of Engineers, and nine from state offices of natural resources conservation. Eight states were represented — Mississippi, Louisiana, Texas, Arkansas, Washington, Vermont, New Mexico and Kansas.

150. Timber Framing Workshop

Partners Timber Framers' Guild of North America, Bellingham, Washington

Texas Department of Parks and Wildlife, Austin, Texas

Project initiated 1995

Project completed

The timber-framed Friendship Pavilion for the East Texas Ecological Education Center near Tyler, Texas was prepared and raised during a hands-on workshop that emphasized timber frame joinery and layout, and cutting mortises and tenons. Expert timber framers from throughout the US instructed 28 participants from Alaska, Arkansas, Colorado, Louisiana, Michigan, Minnesota, North Carolina, Ohio, Pennsylvania, Texas, Virginia and Canada.

PTTProjects

Research

NCPTT Research Coordinator Mark Gilberg is responsible for these projects.

149. Identifying Pigments in Colored Pencils

Partners Kress Foundation, New York, New York

American Society for Testing and Materials-Institute for Standards Research, West Conshohocken, Pennsylvania

Colored Pencil Society of America, Washington, DC

University of North Carolina at Greensboro, Greensboro, North Carolina

Project initiated 1998

Project in progress; anticipated completion Summer 1999

The Kress Foundation and NCPTT are sharing the cost of a research project on identifying pigments in colored pencils. This research is expected to lead to improved light-fastness of fine-art drawings made with colored pencils and to an ASTM standard on the light-fastness of these widely used products. The research will be undertaken by ASTM subcommittee D01.57 on Artist's Paints and Related Materials in collaboration with the Colored Pencil Society of America.

148. Research Priorities in Historic Landscapes

Partner Department of Landscape Architecture, College of Architecture and Allied Arts, University of Oregon

Project initiated 1998

Project completed

In partnership with the University of Oregon's Department of Landscape Architecture, NCPTT sponsored a one-day seminar to identify research priorities in the field of historic landscapes. The seminar was held in Chicago in June 1998, with leading landscape scholars and practitioners as participants. Seminar findings and recommendations were highlighted in *NCPTT Notes* 26.

147. Research Symposium on Conducting Economic Impact Studies in Historic Preservation

Partner Center for Urban Policy Research, Rutgers University, New Brunswick, New Jersey

Project initiated 1998

Project in progress; anticipated completion Winter 1998-1999

In partnership with Rutgers University's Center for Urban Policy Research, NCPTT sponsored a seminar on appropriate methodologies for conducting studies on the economic impacts of historic preservation and interpreting study results. Symposium collaborators include Harvard University's Department of Urban Planning and Design and the Brookings Institution's Center on Urban and Metropolitan Policy. The symposium was held October 1998 at The Brookings Institution, Washington, DC; a symposium report is in preparation.

146. Computer Modeling of Ventilated Protective Glazing Applied to Stained Glass Windows

Partner Enermodal Engineering, Inc., Denver, Colorado

Project initiated 1997

Project in progress; anticipated completion Winter 1998-1999

Enermodal Engineering, Inc. is studying the effects of protective glazing on the long-term preservation of stained glass windows. In 1997, Enermodal developed a computer model to calculate temperature distributions across externally-ventilated glazing systems of the type commonly found in stained glass window installations throughout the US. Data previously collected by Inspired Partnerships (see entry 7) was used to verify the model, which is presently undergoing further refinement to include computer analysis of internally-vented protective glazing. Additional data was collected by NCPTT during Summer 1998 for both internally- and externally-vented protective glazing systems.

145. Controlling Formosan Termites Using Toxic Baits

Partner City of New Orleans Mosquito Control Board, Termite Division, New Orleans, Louisiana

Project initiated 1997

Project in progress; anticipated completion Fall 1999; **results published —**

"Insidious Insects Wage War on New Orleans." *National Geographic* 193, No. 2 (February 1998).

Vivian, D., "More Than a Mere Past: Saving New Orleans from Formosan Termites," *Historic Preservation Forum* 12, No. 4 (1998) 34-40.

In cooperation with the Ft. Lauderdale Research Center of the University of Florida and DowElanco, the New Orleans Mosquito Control Board, Termite Division is testing a new baiting system for controlling subterranean termites. Field trials in New Orleans were initiated in 1997 to bait and monitor a city block of buildings bordering Jackson Square in the historic French Quarter. All publicly-owned buildings have been baited and are being monitored.

Also see *NCPTT Notes* 19, p. 4.

144. Historic Dirt Surfaces

Partner Los Alamitos Foundation, Long Beach, California

Project initiated 1997

Project in progress; anticipated completion Winter 1998-1999

Los Alamitos Foundation is evaluating existing methods and materials used to simulate historic dirt surfaces such as roads, paths and parking areas associated with historic sites. Performance standards and test procedures for proposed surface treatments also will be evaluated.

143. A Methodology for Preserving Cultural Landscapes along Historic Trails

Partner National Park Service–Denver Service Center, Denver, Colorado

Project initiated 1997

Project in progress; anticipated completion Winter 1998-1999

The National Park Service's Denver Service Center is testing a new ecosystem approach to identifying, evaluating and preserving cultural landscapes along historic trails. This approach incorporates models for ecosystem management such as the ecoregion concept, a process of delineating and classifying ecologically distinctive areas of the earth's surface. To date, the model has been applied to historic trails in the Wyoming basin; in 1998 the model is being applied to portions of the Oregon Trail.

142. Using Submeter GPS to Survey Archeological Sites

Partner University of Northern Colorado Research Corporation, Greely, Colorado

Project initiated 1997

Project in progress; anticipated completion Winter 1998-1999

The University of Northern Colorado is exploring the use of differentially corrected, submeter global positioning systems as an alternative to conventional surveying techniques for the rapid, cost-effective collection of archeological data. Preliminary work was initiated in Summer 1997 and continued through Summer 1998.

141. Camp Ruston Oral History Project

Partner The Camp Ruston Foundation, Inc.

Project initiated 1996

Project completed; results published —

Camp Ruston Foundation, Inc. *Camp Ruston*. <http://library.latech.edu/campruston> 1997. [PTTPublications No. 1997-28]

Spione, V. "Camp Ruston," *Headquarters Heliogram*, January/February 1998.

140. Electronic Marker Systems for Locating Re-buried Archeological Sites

Partner Washington State Historic Preservation Office, Olympia, Washington

Project initiated 1996

Project completed; results published —

Whitlam, R.G., "Cyberstaking Archaeological Sites," *SAA Bulletin* 16, No. 2 (1998), 12-15.

"Invisible Datum: Using Electronic Marker Systems in Washington State," *CRM* 21, No. 5 (1998) 49-50.

Other project results —

Symposium on Protecting Our Cultural Heritage with Tomorrow's Technology: The Synergy of EMS-GPS Technologies, A Primer for Field Archaeologists. Sponsored by Maryhill Museum of Art, Washington State Parks and Recreation Commission, Washington State Office of Archaeology and Historic Preservation. Maryhill Museum of Art, Columbia River Gorge, Washington. September 29-30, 1998.

Also see *NCPTT Notes* 27, p. 7.

139. Investigating the Use of Lasers for the Preservation of Cultural Materials

Partner Los Angeles County Museum of Art, Los Angeles, California

Project initiated 1996

Project completed; results published —

Abraham, M., and J. Twilley. *A Review of the State of the Art of Laser Cleaning in Conservation*. Natchitoches, Louisiana: NCPTT. 1997. [PTTPublications No. 1997-01]

The Los Angeles County Museum of Art's Conservation Center reviewed the use of lasers for conserving cultural materials. The Conservation Center also assessed the costs of purchasing laser equipment and establishing a laser research facility at LACMA, which would be open to outside researchers and conservators. The results of the study were submitted for publication in the conservation literature.

138. Second International Conference on Wood Protection with Diffusible Preservatives

Partner Forest Products Society, Madison, Wisconsin

Project initiated 1996

Project completed; results —

The Second International Conference on Wood Protection with Diffusible Preservatives and Pesticides. Forest Products Society, Madison, Wisconsin, 1997.

USS Monitor turret cross-section by computer simulation; see entry 19

137. Analytical Services in Support of Historic Preservation

Partner Frank Preusser and Associates, Los Angeles, California

Project initiated 1995

Project completed; results published —

Preusser, F. *Directory of Materials Testing Services for Historic Preservation*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-06]

NCPTT. "Directory of Analytical and Materials Testing Services for Historic Preservation," *WAAC Newsletter* 20, No. 2 (May 1998) 13-20.

136. Conservation Design for an Independence Hall Exhibit

Partner National Park Service – Harpers Ferry Center, Harpers Ferry, West Virginia

Project initiated 1995

Project completed

135. Investigating Low-altitude Remote Sensing

Partner National Park Service – Denver Service Center, Denver, Colorado

Project initiated 1995

Project completed; results published —

Comer, D. "Webs of Significance: Trails from Above," *CRM* 20, No. 1 (1997) 20-23.

134. Museum Exhibit Lighting: Conservation Lighting Design and Current Technology

Partners Washington Conservation Guild, Freer Gallery of Art and Arthur M. Sackler Gallery Washington, DC

National Park Service – Harpers Ferry Center, Harpers Ferry, West Virginia

Project initiated 1995

Project completed

133. Research Priorities in Art and Architectural Conservation

Partner American Institute for Conservation of Historic and Artistic Works, Washington, DC

Project initiated 1995

Project completed; results published —

Derrick, M. *Funding Priorities in Materials Conservation: Results of a Survey of the AIC Membership.* Natchitoches, Louisiana: NCPTT. 1996. [PTTPublications No. 1996-07]

Materials Research Program

NCPTT Materials Research Program Manager Mary Striegel is responsible for these projects.

132. Materials Characterization of Carbonate Stone

Partner University of Houston, Houston, Texas

Project initiated 1998

Project ongoing

The Materials Research Program has a continuing need for materials characterization for a variety of research projects. University of Houston's Materials Characterization Facility will assist MRP with advanced analytical techniques that complement MRP's study of the effects of surface texture on the deposition of pollutants to calcareous stone.

131. Image Analysis Software

Partners A. Raouf Eldeeb, San Jose, California
US Geological Survey, Menlo Park, California

Project initiated 1997

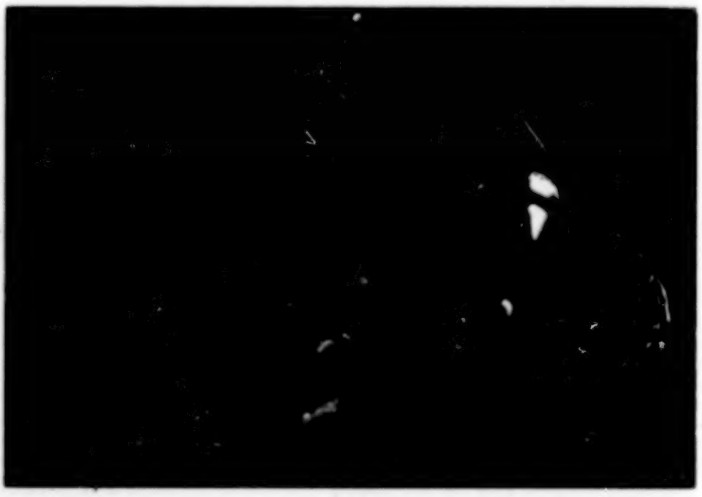
Project ongoing; results published —

US Geological Survey. *EDGE 1.0* (computer software). Natchitoches, Louisiana: NCPTT. 1995. [PTTPublications No. 1995-03]

——. *POREDEMO 1.0* (computer software). Natchitoches, Louisiana: NCPTT. 1995. [PTTPublications No. 1995-04]

——. *SHOWPIX 1.0* (computer software). Natchitoches, Louisiana: NCPTT. 1995. [PTTPublications No. 1995-05]

A series of computer software programs, collectively titled MORPH, is being developed as analytical tools to characterize the surfaces of stone. These programs calculate a fractal dimension of a surface as documented in a digitized electron micrograph image. The software was initially designed to operate on an OS/2 computer operating system; this project modified the software so that it can be operated on PCs with MS DOS operating systems. Additional software modifications allow the program to recognize GIF-formatted images and files in other digital formats. A beta version of the software currently is being field tested by the Materials Research Program.



Detail of corrosion on Tom Otterness' Nero's Penny; see entry 124

130. Materials Research Program Archives

Project initiated 1997

Project in progress

In the transfer of the Acid Rain Program to NCPTT, the Materials Research Program inherited over ten years of files, photographs, slides, data, stone samples and other materials. For this information to be useful in the future, a systematic approach to storage and retrieval is needed. Current archives work includes interpreting records management policies for application to MRP needs, and preparing a multimedia presentation of MRP projects including purpose, accomplishments and results.

129. Carbonate Stone Decay Model and Materials Research Program Synthesis

Partner US Geological Survey, Menlo Park, California

Project initiated 1996

Project in progress

This project reviews the work of the Materials Research Program since its inception and synthesizes essential data into a framework that describes stone deterioration caused by acid deposition. The framework attempts to define dominant processes contributing to stone deterioration, integrate research results, and identify topics that need further study. Excerpts of the synthesis document will be prepared as articles for submission to journals.

128. Deposition Studies on Consolidated Stone

Project initiated 1996

Project in progress

The project compares the effects of four consolidants — Conservare-H, Conservare-OH, an epoxy and an acrylic — on sulfur dioxide deposition on limestone and marble surfaces. A key research issue is the latent sulfate within the stone samples before exposure. If large quantities of sulfate are already present, the amount resulting from deposition cannot be determined. In initial work, a leaching program was developed to reduce existing sulfate to a baseline level. Additional stages in the project will determine sulfur dioxide deposition on untreated limestone and marble samples, treated samples, and treated and artificially aged samples.

127. Deposition Studies on Textured Stone

Partner University of Delaware, Newark, Delaware

Project initiated 1996

Project in progress

This study seeks to understand how changes in surface texture affect the way sulfur dioxide is deposited on calcareous stone. Research results will be applicable in evaluating the utility of cleaning methods used in conserving calcareous stone monuments, sculpture and buildings. Research design and an annotated bibliography are completed.

126. Materials Research Program Literature Project

Project initiated 1996

Project in progress

This project addresses the need to organize over 1,400 literature offprints collected by the National Park Service's Acid Rain Program and its successor Materials Research Program over a thirteen-year period. A completed HTML version is ready for installation on NCPTT's Web site, and a network version of bibliographic software will allow in-house and off-site database updates.

125. NCPTT Laboratories

Project initiated 1996

Project ongoing

NCPTT includes two laboratories — an Environmental Exposure Facility and a Digital Research Laboratory — both established and managed by the Materials Research Program.

NCPTT's Environmental Exposure Facility was created in 1996 when laboratory equipment designed for Materials Research Program projects at US Geological Survey offices in Reston, Virginia was moved to NCPTT. The Environmental Exposure facility initially included a custom-built recirculating exposure chamber capable of precise control of temperature, wind speed, relative humidity and pollutant concentration. The facility has been expanded with the addition of new computers and software, a Dionex Ion Chromatograph, and equipment for preparing metallographic and petrographic samples for optical microscopy.

NCPTT's Digital Research Laboratory is designed to capture, manipulate and publish still and motion digital images. The laboratory houses a graphics workstation, a digital workstation, a stereo zoom microscope, and a polarized light research microscope. In collaboration with NCPTT's Training component, MRP has assisted in the development of a digital microscopy/videography system comprised of a digital workstation, professional digital video equipment and SPOT digital camera. Recent upgrades to the Digital Research Laboratory included a writable CD-ROM drive and a JAZ drive for additional storage needs, and the addition of Toolbook II Assistant 6.0 software for developing multimedia and computer-based training projects.

124. Researching Bronze Corrosion in Marine Environments

Partner Urban Art, Inc., Los Angeles, California

Project initiated 1996

Project in progress

This project investigates the role of chlorides in the development of cuprite corrosion on bronze sculpture and ornamentation located in marine environments. The goal of the initial research phase is to document unusually thick, well-adhered black corrosion observed by conservators working in tropical and subtropical climates. To date, samples have been collected, an analytical procedure has been established and a literature review of cuprite corrosion and chlorides is underway.

123. State-of-the-Art Literature Review on Acid Deposition and Stone Deterioration

Partner United States Committee/International Council on Monuments and Sites, Washington, DC

Project initiated 1996

Project in progress; results published —

Charola, A.E. *Review of the Literature on the Topic of Acidic Deposition on Stone*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-09]

This project is an overview of the definitive literature on stone deterioration caused by acidic deposition. A draft overview is completed. NCPTT plans to publish the final overview as a monograph.

122. Statistical Analysis of NAPAP Chemical/Physical Data

Partner Terry J. Reedy, Newark, Delaware

Project initiated 1996

Project in progress; results published —

Reedy, T. J. *Description and Analysis of NAPAP Briquette Surface Chemistry Files*. Natchitoches, Louisiana: NCPTT. 1998 [PTTPublications No. 1998-30]

Analytical tests — including color and recession measurements, weight change, and chemical analyses — were performed on limestone and marble samples exposed for various lengths of time at stone field test sites over a decade. This project inventories existing data from those tests and evaluates data quality. Data will be documented and placed in a standardized format. Correlations between chemical/physical data and valid aerometric data will be attempted.

121. Statistical Analysis of NAPAP Meteorological Data

Partner Terry J. Reedy, Newark, Delaware

Project initiated 1996

Project completed; results published —

Reedy, T. J. *Evaluation of NAPAP Aerometric Data*. Natchitoches, Louisiana: NCPTT. 1996. [PTTPublications No. 1996-21]

In 1997 Dr. Reedy completed the statistical analysis of the NAPAP aerometric data and prepared a report on the condition, format and completeness of the data.

120. Using UV Photography to Document Water Flow Patterns

Partner Vernon Miller and Associates, Santa Barbara, California

Project initiated 1996

Project in progress

This short-term study investigated photographic techniques to document water flow patterns over calcareous stone surfaces. The flow of water over surfaces is thought to be a key variable in the deterioration of stone and serves an important role in the integrated deterioration model being developed by the Materials Research Program. At present, the role of water flow is poorly documented and understood.

The research used fluorescent dyes and ultraviolet illumination to visualize the flow of water over surfaces. Tests of the fluorescent dye system in real rain events showed that the methodology was inadequate to render the insights needed. A report is in preparation.

119. A Tall Limestone Building

Partner Carnegie Mellon University, Pittsburgh, Pennsylvania

Project initiated 1991

Project ongoing; results published —

Etyemenzian, V., et al. *Influence of Atmospheric Pollutants on Soiling of a Limestone Building Surface*. Natchitoches, Louisiana: NCPTT. 1995. [PTTPublications No. 1995-06]

——. *Vertical Gradients of Pollutant Concentrations and Deposition Fluxes at the Cathedral of Learning*. Natchitoches, Louisiana: NCPTT. 1996. [PTTPublications No. 1996-09]

——. *Physical and Chemical Processes of Soiling and Washoff at the Cathedral of Learning*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-11]

——. "Vertical Gradients of Pollutant Concentrations and Deposition Fluxes on a Tall Limestone Building." *Journal of the American Institute for Conservation*. v. 37, No. 2, 1998, pp. 187-210.

This project encompasses a series of graduate and undergraduate projects designed to document the soiling patterns and to characterize the conditions that lead to the soiling of the Cathedral of Learning in Pittsburgh, Pennsylvania. The overall goals of this project are to better understand why and how soiling occurs and to develop models that link soiling to pollution types and concentrations.

Also see *NCPTT Notes* 16, p. 1.

118. Hiker Bronze Monograph

Partner University of Delaware, Newark, Delaware

Project initiated 1983

Project in progress

The Hiker Bronze Project has studied the effects of acid deposition on a series of fifty-two statues by Theo Alice Ruggles Kitson cast by the Gorham Foundry in commemoration of the Spanish-American War. Existing photo-documentation and surface molds of each statue demonstrate the corrosion suffered by each statues. A wealth of other information regarding the statues also has been collected during the project. A monograph is planned that documents the life of the artist, the role of the statues as memorials, and the statues' existing conditions and conservation treatments.

117. Stone Field Test Site Exposure

Partner Argonne National Laboratory, Argonne, Illinois

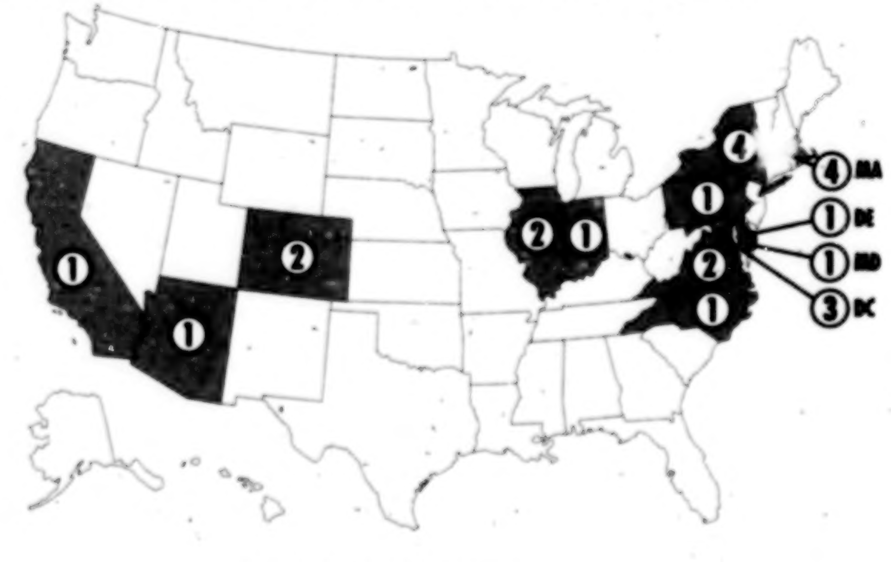
Project initiated 1983-1996

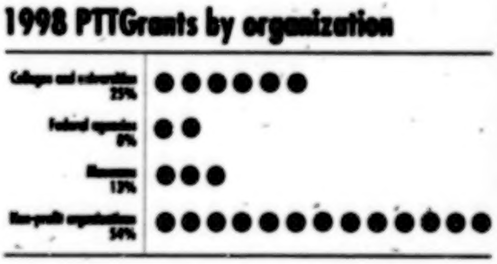
Project completed: results will be archived

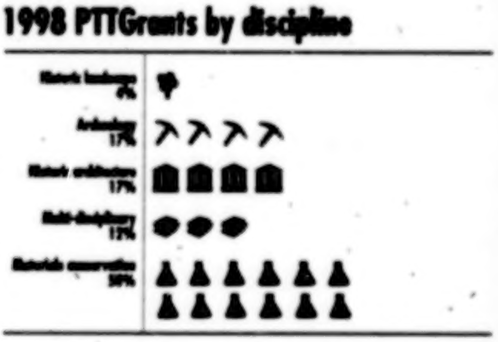
For many years, the field exposure project was the main focus of the Materials Research Program, with stone samples exposed at five field test sites, retrieved, and analyzed for chemical and physical properties. The next step in this project is to transfer all research materials to NCPTT for evaluation and archiving.

1998 Preservation Technology and Training Grants

National Distribution of 1998 PTTGrants







1998 PTTGrants

Information Management

NCPTT Information Management Coordinator Mary Carroll is responsible for these projects.

116. Conservation Materials Database

Museum of Fine Arts, Boston, Massachusetts

$37,300

Project abstract: Knowledge of material properties, reactivity and history can be crucial to conservation treatment success and safety. The Museum of Fine Arts will create a digitized database of information on materials and processes used in making, treating and testing artistic and historic objects. The database will include over 10,000 records and will serve as a time-saving resource for conservators. As a subsequent PTTProject, the database will be accessible online.

Project significance: Artistic and historic materials conservation is a broad yet complex field where levels of training and experience vary greatly. Information on conservation materials and processes is scattered in various sources that are not readily available to many conservators. The Conservation Materials Database will be a comprehensive standardized Internet resource that can enhance practitioners' knowledge and the conservation of cultural resources.

115. Online Information for Preserving Religious Properties

Partners for Sacred Places, Philadelphia, Pennsylvania

$40,000

Project abstract: Partners for Sacred Places' Information Clearinghouse is a unique database and library of 6,000 enties on the care and preservation of religious properties. Clearinghouse materials currently are accessible only via telephone or mail. The project will prepare the Information Clearinghouse database and a selected set of documents — articles, how-to fact sheets and other technical materials — for Internet access by congregations and preservationists.

Project significance: Efficient access to substantial information is important in all preservation efforts. This project marries an existing resource with current information management technology and provides national online access to a centralized source of information and assistance on the stewardship of historic religious properties.

114. Science, Technology and Treatment of Albumen Photographs

Monterey Museum of Art, Monterey, California

$40,000

Project abstract: The Monterey Museum of Art will develop the Albumen WebSite on the technology, science and treatment of albumen photographs. The site will include existing literature, pictorial information — including video — and hyperlinks to historic texts and information on conservation science and treatments. Structured to permit users' access to topics at their own level of interest and experience, the site will serve as a universally accessible resource for photography conservators, scholars and curators.

Project significance: Preserving nineteenth century albumen prints is of great concern to collection managers, curators, collectors and conservators. Through this new Web site, basic scientific properties of albumen photographs and information on the effects of treatments and environments on albumen photographs will be readily accessible. By linking general information and in-depth research and data, the Albumen WebSite will provide useful information founded in conservation science.

1998 PTTGrants

Training and Education

NCPTT Training Coordinator Frances Gale is responsible for these projects.

113. Ground Penetrating Radar Workshops

University of Denver, Denver, Colorado

$40,000

Project abstract: The University of Denver's Department of Anthropology will conduct a series of workshops on using three-dimensional ground penetrating radar to locate and identify buried archeological features. The workshops will teach cultural resource professionals new techniques for evaluating buried sites using three-dimensional analysis of GPR data. With these techniques, sites can be intelligently managed and appropriately treated or avoided during construction and development projects. This workshop series developed from a successful 1996 PTTGrants research project (see entry 60).

Project significance: Archeological sites are disappearing rapidly as a result of vandalism, erosion and, most critically, development. GPR mapping of buried sites could radically change land management techniques and compliance with the National Historic Preservation Act by efficiently locating and mapping archeological remains prior to accidental discovery and possible destruction.

112. *Harlem: Preserving an Historic Neighborhood* Workshops

Abyssinian Development Corporation, New York, New York

$36,750

Project abstract: Abyssinian Development Corporation will present a series of preservation workshops for Harlem's residential and commercial property owners and managers and construction professionals. The series provides an opportunity for Harlem residents and professionals to learn about new preservation technologies.

Project significance: Harlem, a center of African American culture throughout the 20th century, has a rich architectural and historical legacy. This series of workshops on technical preservation issues will provide information to Harlem's residential and commercial property owners and will attract potential owners and developers from diverse ethnic, racial and economic backgrounds. In addition to serving the community, the workshop series will help to create links and relationships between Harlem residents and the preservation community, fostering the sharing of technical information and skills.

111. NEPA for Preservationists: A CD-ROM Learning Tool

National Preservation Institute, Alexandria, Virginia

$39,300

Project abstract: The National Preservation Institute will produce an interactive CD-ROM on the National Environmental Policy Act, a law requiring Federal agencies to consider the effects of their proposed actions on the environment. This project will create an inexpensive learning tool that will lead the user through the NEPA review process, and assist the user in analyzing preservation issues in terms of NEPA. The CD-ROM will serve as an introductory learning device and as a reference tool.

Project significance: NEPA can ensure that impacts on historic properties are considered in planning Federal projects. The need for skillful use of planning tools like NEPA is particularly acute today, as government agencies downsize and government policy increasingly emphasizes regulatory efficiency. The interactive CD-ROM will educate preservationists working in government agencies, consulting firms and nonprofit organizations about NEPA and its use in preserving our national heritage.

110. Online Course on Paper Conservation

Northeast Document Conservation Center, Andover, Massachusetts

$39,000

Project abstract: Northeast Document Conservation Center will develop an online course on paper conservation for staff of small historical organizations and for private collectors. Using electronic mail and bulletin boards, the four-week pilot course will provide an introduction to storage, handling and environmental issues for documents and photographs. This distance learning course will use Internet technology to reach a national audience and will serve as a model for cost-effective education projects undertaken by conservation organizations.

Project significance: The proposed course responds to growing demand from NEDCC's audience for conservation information in electronic format. Thousands of small organizations and nearly every family collects documents and photographs, but often they are poorly stored and housed.

There is a national need for prolonging the life of these materials. While professional conservation is too costly for most individuals and small institutions, retarding deterioration through improved housing and handling is a realistic goal. This online conservation course will raise public awareness of threats to collections and help people preserve collections through improved storage, handling and environment.

Applied/Fundamental Research

NCPTT Research Coordinator Mark Gilberg is responsible for these projects.

109. Draft Historic Building Code

Association for Preservation Technology International, Williamsburg, Virginia

$40,000

Project abstract: An Historic Building Code will be prepared as the first national code for historic buildings. It will be drafted by a project team with expertise in building codes and preservation, and will incorporate current research, recent advances in technology and existing approaches to rehabilitation. Upon completion of the project, the draft Historic Building Code will be submitted for adoption by the International Code Council. Because ICC currently is preparing the *International Building Code and the International Existing Buildings Code*, which will apply to historic buildings, this project takes advantage of a unique opportunity to influence the principal documents affecting the rehabilitation of historic structures.

Project significance: During rehabilitation, modifications made to comply with current building codes often cause irrevocable damage to historic buildings. In many cases, codes and standards that have been developed for historic buildings are ignored, leaving the code enforcement officer solely responsible for deciding whether to retain or to remove historic fabric. Although many states and various organizations have developed special provisions for the treatment of historic buildings, there is still no uniform national standard. The draft Historic Building Code will rectify this deficiency.

108. Modeling Simulated Archeological Features Using Advanced Geophysical Techniques

US Army Construction Engineering Research Laboratories, Champaign, Illinois

$40,000

Project abstract: Through innovative data and image processing techniques — particularly inversion filtering—this project will develop methods of generating images from geophysical data that accurately depict the size and shape of buried archeological features. USACERL will conduct field trials at its Controlled Archaeological Test Site (see entry 16), which replicates a wide range of archeological features commonly encountered in North America.

As a corollary study, new approaches to conducting resistivity surveys also will be conducted at CATS. Low- and high-resolution resistivity surveys will be integrated by decreasing the sampling interval within the boundaries of an archeological site in areas where anomalies have been identified previously. Since resistivity data contain information on the depth of a geophysical anomaly, image processing of this data has the potential to yield a three-dimensional image of the anomaly, thus allowing archeologically significant features to be distinguished from natural features.

Project significance: Improvements in data and image processing techniques will significantly increase the cost-effectiveness and efficiency of geophysical techniques for identifying and protecting archeological sites and features. These improvements ultimately will enhance the ability of cultural resource professionals to accurately assess archeological site integrity and significance using minimally destructive techniques.

Formosan termite damage at Perseverance Hall, New Orleans, Louisiana; see entry 145

107. Effects of Color Temperature and Intensity on the Appearance and Aesthetic Quality of Illuminated Museum Objects (Phase 1 of two phases)

Brooklyn College, Brooklyn, New York

$39,902

Project abstract: Effects of color temperature and intensity on color discrimination and appearance and on aesthetic qualities of illuminated museum objects will be investigated. Studies will seek to determine how visual function and color appearance are affected by the color temperature of background illumination within the range typically used in museum exhibits. Psychophysical testing also will be conducted to determine how observers perceive color appearance, particularly the magnitude of hue and saturation.

Project significance: The illumination of museum objects must balance the need to minimize light-induced damage with the desire to optimize viewing conditions. Conventional museum standards for lighting — based principally on light intensity and duration — do not consider the color temperature of the light source, which has impact on the quality and brightness of a light source. By understanding the relationship between color temperature and light intensity and how they affect human perception of illuminated museum objects, more objective lighting specifications can be developed that provide observers with an acceptable viewing experience without subjecting museum objects to light-induced damage.

106. Nondestructive Methods for the Structural Evaluation of Wood Floor Systems in Historic Buildings (Phase 2 of two phases)

Purdue University, West Lafayette, Indiana

$40,000

Project abstract: This project continues work begun with a 1997 PTTGrants award (see entry 83). Phase 2 will investigate nondestructive techniques for evaluating the structural integrity of wood floor systems in historic buildings, with emphasis on developing test procedures for assessing in-place floor systems. Dynamic test methods, including transverse vibration methods and ultrasonic and stress wave transmission techniques, will be evaluated in an effort to assess and predict the residual performance of load-bearing wood floors.

Project significance: There is no standard method for evaluating the structural integrity of wood floor systems using nondestructive techniques. Current methods of examination and assessment often are subjective and yield imprecise results. Estimates of allowable wood floor loads often are conservative, and low allowable load estimates often lead to demolition of historic fabric or inappropriate rehabilitation. Successful completion of this project will enable inspectors to nondestructively assess the load-carrying capacity of floor systems and assign accurate allowable load values to wood floor systems in historic buildings.

Environmental Effects

NCPTT Materials Research Program Manager Mary Striegel is responsible for these projects.

105. **Building Stones of America: 50 Years of the NIST Stone Exposure Test Wall**

Building and Fire Research Laboratory, National Institute of Standards and Technology, Gaithersburg, Maryland

$25,000

Project abstract: The NIST stone test wall was constructed in 1948 to study the performance of stone subjected to weathering. The wall contains 2,352 samples of stone — 2,032 domestic stones from 47 states and 320 imported stones. Unexposed samples have been stored indoors for comparison of weathering effects.

The project will document and evaluate the effects of long-term natural weathering on the building stones of the NIST test wall, and will provide a record of the stones' performance after 50 years of exposure. Project data will be stored in an archival database to allow future comparisons.

Project significance: The project is a unique opportunity to study and compare the long-term performance of a wide range of building stones. Project results will be useful to preservation architects, architectural materials conservators, and design and construction professionals who select stone for new construction.

104. **Masonry: 160 years of Indexed Bibliography**

The Masonry Society, Boulder, Colorado

$6,500

Project abstract: The project will create an indexed bibliography of nearly 6,000 trade and academic references; the new bibliography will be accessible via an online database. The bibliography's emphasis is the manufacturing, testing and use of brick, stone, terra cotta and lime-based mortars.

Project significance: One obstacle for architectural materials conservation is the wide distribution of relevant literature. An online database of masonry references will be useful to a large audience interested in preserving historic masonry buildings and monuments.

103. **A New Protocol for the Analysis of Deteriorated Historic Mortars and Plasters**

Museum Studies Program, University of Delaware, Newark, Delaware

$49,956

Project abstract: Accurately identifying deteriorated materials is a necessary prelude to developing preservation and conservation strategies. This project will develop a protocol for analyzing historic mortars and plasters by evaluating the various techniques currently used in analyzing historic mortars. The evaluation will determine the methods and techniques that best characterize mortars' and plasters' original constituents and proportions. A new standard protocol for analyzing historic mortars and plasters will be based on the best characterization techniques.

Project significance: With a reliable protocol for studying historic mortars and plasters, preservation practitioners could consistently evaluate these materials for a variety of purposes. In addition to its use in developing preservation treatments, standardized mortar and plaster analysis will be useful in comparing and dating materials, and studying the development of technology.

102. **Removing Gypsum Crusts from Carbonate Rocks: A Study of the Efficacy of Intermittent Flow Water Misting Techniques**

Art2F[illegible]a, New York, New York

$29,900

Project abstract: Water misting removes gypsum from calcareous stones due to the relative solubility of gypsum versus calcite — but not without risks. Deterioration — such as dislodging grains as calcite dissolves during continuous flow cleaning — and water conservation are drawbacks to this conservation technique. Laboratory research will assess damage by calcite dissolution and grain dislodgment on marble and limestone tiles using coarse and fine sprays and continuous and intermittent water flows. On-site testing will assess the cleaning efficiency of different spray protocols.

Project significance: Although water misting is used to clean millions of square feet of stone annually in the United States, this cleaning technique is not thoroughly researched. The two-fold aim of reducing stone loss and reducing the volume of water needed to clean calcareous stone makes this research of great value to those interested in preserving stone buildings and monuments.

101. **Research into Protective Coating Systems for Outdoor Bronze Sculpture and Ornamentation (Phase 3 of three phases)**

National Gallery of Art, Washington, DC

$50,000

Project abstract: This project concludes work begun with a 1995 PTTGrants award (see entry 26) and continued with a 1997 PTTGrants award (see entry 82). Phase 3 addresses the need for new coating strategies to protect outdoor bronzes from the effects of polluted environments. The weathering performance of five coating systems developed or tested during previous phases will be determined. Samples will be tested after both accelerated and natural outdoor weathering and the results correlated. The goal of this phase is summary conclusions and recommendations concerning surface preparation, coating systems and coating application for use on outdoor bronze.

Project significance: The need for long-term effective protective coatings to preserve outdoor bronze from the damaging effects of polluted urban environments is well established. With a fundamental understanding of coatings mechanism and their suitability in certain environments, preservation professionals will have effective treatments that reduce corrosion of bronze sculpture and ornamentation.

100. **Researching the Role of Microorganisms in the Deterioration by Atmospheric Pollutants of Stone used in Historic Buildings and Monuments (Phase 2 of three phases)**

Harvard University, Cambridge, Massachusetts

$50,000

Project abstract: This project continues work begun with a 1997 PTTGrants award (see entry 81).

Microorganisms have been implicated in the degradation of stone by pollutants, but neither the mechanisms nor the importance of microbial processes in pollutant damage has been elucidated. Phase 1 research observed the effects of the pollutants sulfur dioxide, nitrogen oxides and hydrocarbons on microflora naturally occurring in and on limestone. Phase 2 research will evaluate the interaction of these pollutants and microflora for its deteriorating effects on limestone. The study also will test artificial polymers and biocides as means of controlling biologically mediated deterioration.

Project significance: Biological causes of stone deterioration may be a critical component of cultural resource decay, particularly in tropical and subtropical environments. While studies have been ongoing in the area of biological decay, few researchers have looked at the effects of air pollution on microorganisms. This study will enhance our understanding of the role of microorganisms and their interaction with pollutants in the process of stone deterioration. By better understanding this process we can develop more effective remedial treatments to preserve stone exposed to air pollutants.

Technology Transfer

NCPTT Research Coordinator Mark Gilberg is responsible for this project.

99. Exploring Archeological Sites Using a Modified Magnetic Susceptibility Probe

Southern Illinois University, Edwardsville, Illinois

$14,525

Project abstract: Soil magnetic studies — including magnetic susceptibility measurements — can be used to identify archeological sites and features and to understand soil stratigraphy in relation to the archeological record. In this project, a commercial magnetic susceptibility probe will be modified to allow taking magnetic susceptibility measurements at varying depths in bore holes. The magnetic susceptibility probe then will be calibrated to calculate absolute susceptibility values and tested at a section of exposed soil at the Cahokia Mounds site in Illinois.

Project significance: Commercially available magnetic susceptibility probes have limited utility in measuring magnetic susceptibility variations with depth. To obtain this information, samples must be collected from exposed sections of soil or by coring or excavation, and transported to the laboratory for measurement. Refinement of magnetic susceptibility technology will provide a more sensitive and economical means of exploring archeological sites.

Analytical Facility Support

NCPTT Research Coordinator Mark Gilberg is responsible for this project.

98. Facility Support for Enhanced Analytical Services (Phase 2 of two phases)

Williamstown Art Conservation Centre, Williamstown, Massachusetts

$49,936

Project abstract: This project continues work begun with a 1997 PTTGrants award (see entry 75). In Phase 2, Williamstown Art Conservation Center will acquire and upgrade scientific instrumentation, — particularly light microscopy and FT-IR microscopy—, purchase materials and supplies for analytical equipment, and provide analytical services not commonly available to the preservation and conservation community.

Project significance: Light microscopy and FT-IR microscopy are among the most widely used techniques for analyzing works of art and for visual examination of layered samples and identification of organic and inorganic materials found in pigments, fibers, dyes, binders and coatings. Technical data are fundamental to investigating materials, implementing informed conservation treatments, authenticating and dating museum objects, and selecting appropriate materials for use in exhibition and storage. Few conservation centers or conservators, however, are technically capable of undertaking such analyses. This PTTGrants award will enhance the Williamstown Art Conservation Center's ability to provide timely and reliable analyses at reasonable cost.

Conference Support

97. National Archaeological Collections Management Conference

Society for Historical Archaeology, Tucson, Arizona

$9,993

Project abstract: In the past twenty years, Federal reports, professional papers and monographs have articulated a crisis in the management of our nation's archeological collections. Despite the introduction of professional guidelines in 36 CFR Part 79, Curation of Federally-Owned and Administered Archeological Collections, the crisis still exists. The National Archaeological Collections Management Conference will convene leaders in the fields of collections management, conservation and archives management to address issues that are central to the long-term care of our archeological heritage, including a national collections management plan.

Project significance: Deterioration of collections and associated records, substandard facilities for housing collections, inadequate professional staff and training to manage collections, lack of appropriate management policies, and lack of coordinated policy at the local, state and national levels imperil our nation's archeological collections. While general standards and guidelines exist for preserving archeological collections, there is no means for implementing a coherent national program. This conference will develop a plan for creating standards, protocols and management policies for the long-term curation of archeological collections.

NCPTT Information Management Coordinator Mary Carroll is responsible for this project.

96. Preserving Historic Guastavino Tile Ceilings, Domes and Vaults

New York Landmarks Conservancy, New York, New York

$10,000

Project abstract: The New York Landmarks Conservancy will conduct a one-day conference on preserving Guastavino tile construction. Co-sponsors include Columbia University and the American Institute of Architects New York Chapter. Conferees will hear from experts on identifying, examining and preserving Guastavino tile systems used to construct many prominent historic buildings. Conference papers will be published in a special edition of *APT Bulletin*.

Project significance: Rafael Guastavino y Moreno, a Spanish-trained architect who emigrated to the US in the late 1880s, used an age-old Spanish system for constructing thin-shell masonry domes and vaults. Guastavino tile was used in over 1,000 projects including many important public buildings in the United States. As these buildings age, an understanding of Guastavino tile systems becomes increasingly important. This conference will convene specialists to share expertise and discuss recent technical developments in preserving Guastavino tile construction.

NCPTT Training Coordinator Frances Gale is responsible for this project.

95. Proceedings of the 11th Conference on Restoring Southern Gardens and Landscapes

Old Salem, Inc., Winston-Salem, North Carolina

$6,500

Project abstract: The 11th Conference on Restoring Southern Gardens and Landscapes was held in Old Salem, North Carolina, in October 1997. Attended by professionals and laypeople working in cultural landscape preservation, the conference provided a venue for discussing a variety of issues including the uses of new technologies. With PTTGrants support, Old Salem, Inc., will publish the conference proceedings for national distribution.

Project significance: The 11th Conference on Restoring Southern Gardens and Landscapes identified new developments in the theory and practice of historic landscapes preservation. Publishing conference proceedings will help to distribute information on new technologies to those working with historic landscapes.

NCPTT Training Coordinator Frances Gale is responsible for this project.

1998 PTTGrants

Publications Support

94. Research Priorities for Natural History Collections Conservation

Society for the Preservation of Natural History Collections, Washington, DC

$9,950

Project abstract: SPNHC will review current priorities for research in the conservation of natural history specimens. Two existing reports will be considered — the National Institute for the Conservation of Cultural Property's report on preserving natural science collections (1993) and the American Institute for Conservation of Historic and Artistic Works' report, *Funding Priorities in Materials Conservation* (see entry 133). The new report will receive direct input and review by members of SPNHC and its Conservation Committee, and will serve as a companion to the AIC report.

Project significance: The priorities report will serve as a tool for individuals and professional societies to assess the current state of conservation research needs. There are many overlapping research interests between the arts and natural history communities. This document will highlight common interests and encourage cooperative, non-repetitive efforts. The result will be an improved focus for research projects, improved chances for funding research projects, and more effective use of scarce research dollars to benefit the entire museum community.

NCPTT Information Management Coordinator Mary Carroll is responsible for this project.

93. Salt Decay of Porous Materials: A Literature Review

United States Committee/International Council on Monuments and Sites, Washington, DC

$10,000

Project abstract: The goal of this project is to prepare an overview of literature dealing with salt decay of porous materials. Although basic mechanisms for this deterioration have been characterized, many points such as the influence of salt hydration-dehydration cycles or the presence of multiple salts remain to be elucidated. A monograph summarizing the literature cross-referenced by materials and type of salt will be prepared as a basic guide to the current understanding of this complex topic.

Project significance: Some aspects of salt decay are not well understood and the first step in filling such gaps in our knowledge is a critical review of the existing literature. This project will produce a useful tool for conservators and students, and this project should stimulate further research on the problems of salt decay.

NCPTT Materials Research Program Manager Mary Striegel is responsible for this project.

1997 Preservation Technology and Training Grants

1997 PTTGrants

Information Management

NCPTT Information Management Coordinator Mary Carroll is responsible for these projects.

92. Advancing SHPO Geographic Information Systems in the Western United States

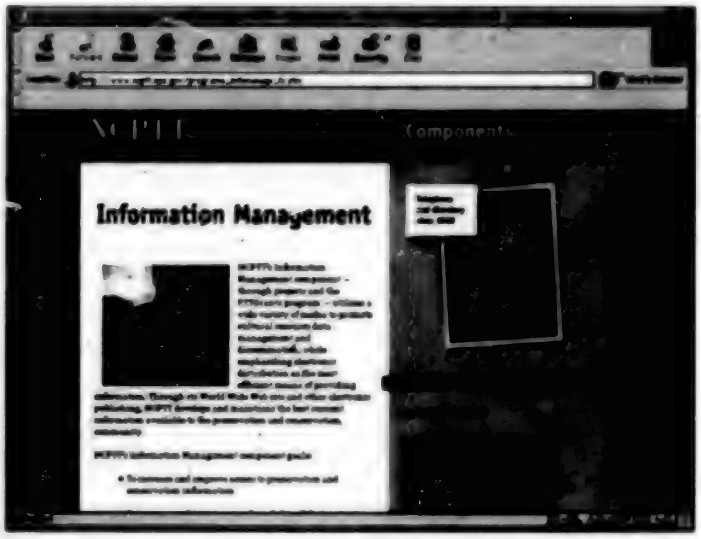
New Mexico State Historic Preservation Office, Santa Fe, New Mexico

Wyoming State Historic Preservation Office, Cheyenne, Wyoming

$36,243

Project in progress; anticipated completion Winter 1998-1999

The SHPOffices of New Mexico and Wyoming are implementing a common cultural resource database design. This collaboration is developing a common spatial data structure and implementing a prototype Geographic Information System based on the ESRI Spatial Database Engine and other supporting ESRI technologies. A draft of the logical data model is available at <colby.uwyo.edu/FGDCNCPTTHOME.html>.



Information Management component section of NCPTT's web site, <www.ncptt.nps.gov>; see entry 165

91. Digitization of Primary Documents Pertaining to the Archeological Collections from California and Nevada in the Phoebe Hearst Museum of Anthropology

Phoebe Hearst Museum of Anthropology, University of California, Berkeley, California

$23,001

Project in progress; anticipated completion Winter 1998-1999

The Phoebe Hearst Museum of Anthropology is digitizing primary documents pertaining to archeological materials from California and Nevada in the museum's collections.

90. Michigan Historic Sites Database Online

Michigan State Historic Preservation Office, Lansing, Michigan

$32,977

Project in progress; anticipated completion Winter 1998-1999

The Michigan State Historic Preservation Office is upgrading existing electronic records to include descriptions, significance statements and images for 3,000 Michigan registered historic sites, and making the completed records available to the public via on-site terminal and World Wide Web.

Training and Education

NCPTT Training Coordinator Frances Gale is responsible for these projects.

89. Lead Paint and Historic Preservation Training and Workbook

Illinois State Historic Preservation Office, Springfield, Illinois

$40,000

Project in progress

Two two-day training classes on lead paint and historic buildings were conducted by the Illinois State Historic Preservation Office in July 1998, in Springfield, Illinois. Two additional two-day training classes are scheduled for November 1998, in Chicago, Illinois. Workshop topics include regulations and design procedures for making historic buildings lead safe and field techniques for safe and cost effective work. A workbook will be available in Spring 1999.

88. A Training Video — Applying the Secretary of the Interior's Standards to Historic Districts

Oregon State Historic Preservation Office, Salem, Oregon

$23,640

Project delayed

The Oregon State Historic Preservation Office will prepare a video to educate local decision-makers about applying The Secretary of the Interior's Standards for the Treatment of Historic Properties to historic districts. The video will highlight context issues and groupings of "background" properties — the classification category for a significant percentage of historic district properties.

Assessing building fabric at Gallier House in New Orleans, Louisiana, site of a 1995 preservation skills training workshop series; see entry 46

87. Preservation TrainNet: Online Training for Local Governments

Goucher College, Towson, Maryland

$38,350

Project in progress

Goucher College will develop an online distance learning program on historic preservation designed to educate local government officials and members of preservation and design review commissions. Preservation TrainNet will include training on identifying, evaluating and designating historic properties, and the philosophy and benefits of historic preservation. Internet technology will ensure that Preservation TrainNet information is widely accessible.

86. Techniques for Restoring and Conserving Three-Dimensional and Stained Glass Objects

Gerald R. Ford Conservation Center, Nebraska State Historic Preservation Office, Omaha, Nebraska

$17,563

Project completed; results published —

Gerald R. Ford Conservation Center. *Glass and Stained Glass Conservation Workshop* (workbook). July 27-31, 1998. Omaha, Nebraska: Gerald R. Ford Conservation Center 1998. [PTTPublications No. 1998-29]

Higgins, Mary Clerkin. *Glass & Stained Glass Conservation Workshop*, Gerald R. Ford Conservation Center, Omaha, Nebraska, July 1998. (video). Omaha, Nebraska: Nebraska State Historical Society. 1998. [PTTPublications No. 1998-28]

1997 PTTGrants

Applied/Fundamental Research

NCPTT Research Coordinator Mark Gilberg is responsible for these projects.

85. Museum Lighting Protocol

Rensselaer Polytechnic Institute, Troy, New York

$35,359

Project completed; results are undergoing review in preparation for publication.

84. Nondestructive Method for Evaluating the Hardness of Pointing Mortars

Rocky Mountain Masonry Institute, Denver, Colorado

$39,765

Project in progress; anticipated completion Winter 1998-1999

Rocky Mountain Masonry Institute is developing a simple, nondestructive method for evaluating the surface hardness of historic mortars using a commercially available low-energy pendulum-type rebound hammer modified to allow testing different joint types and thicknesses. Preliminary trials proved inconclusive because the hammer tended to damage very soft mortars. A pendulum hammer that delivers less energy to the mortar will be developed and tested. New equipment to test hardness at depths within a joint is in design.

83. Nondestructive Methods for the Structural Evaluation of Wood Floor Systems in Historic Buildings (Phase 1 of two phases)

Purdue University, West Lafayette, Indiana

$40,000

Project in progress; also see entry 106

Nondestructive techniques including transverse vibration, ultrasonic and stress wave transmission techniques currently are under investigation to assess and predict the residual performance of in-place, load bearing wood floors. Data sets of mechanical and physical properties of 17 in-place floor joists have been created. Data sets for 15 green floor joists also have been created and will be used to analyze floor sections similar to those of the in-place floor joists. An attempt is underway to create a first-approximation model of sections of the floor using the finite element method. Static modeling of floor sections has been accomplished but vibrational modeling has proven difficult.

1997 PTTGrants

Environmental Effects

NCPTT Materials Research Program Manager Mary Striegel is responsible for these projects.

82. Research into Protective Coating Systems for Outdoor Bronze Sculpture and Ornamentation (Phase 2 of three phases)

National Gallery of Art, Washington, DC

$50,000

Project in progress; also see entries 26 and 101

There is consistent need for long-term effective protective coatings to preserve outdoor bronze sculpture from the damaging effects of polluted urban environments. This research addresses the need for new coating strategies to protect outdoor bronzes from the effects of atmospheric pollutants. Hypotheses developed in phase 1 are being tested in phases 2 and 3 by studying selected coating systems on an expanded range of substrates. The goal is to determine the roles played by coating thickness and adhesion in accelerated and natural outdoor weathering, and to investigate chemical interactions between substrates and coatings at the metal/polymer interfaces and their role in coating performance. The ultimate goal of this research is reliable prediction of coating performance on various substrates.

81. Researching the Role of Microorganisms in the Deterioration by Atmospheric Pollutants of Stone Used in Historic Buildings and Monuments (Phase 1 of three phases)

Harvard University, Cambridge, Massachusetts

$48,631

Project in progress; also see entry 100

Microorganisms have been implicated in the degradation of stone by pollutants, but neither the mechanisms of action nor the importance of microbial processes in pollutant damage has been elucidated. This project investigates the role of indigenous bacteria and fungi in the deterioration of limestone contaminated with sulfur dioxide, nitrogen oxides and hydrocarbons. The principal investigators used two cemeteries in their study to compare a polluted and unpolluted environment. Results to date show that the number of microorganisms on stone at the polluted site was much lower than at the unpolluted site. Pollution also suppressed the diversity of the population. Despite suppression of the total population and diversity on the polluted stone, the research team detected a much higher population of microbes capable of oxidizing sulfur and hydrocarbons than on the unpolluted stone. Their data suggest that the atmospheric pollutants are suppressing many of the normal stone organisms, and stimulating sulfur- and hydrocarbon-utilizing populations.

1997 PTTGrants

Technology Transfer

80. Coordinate Measurement of Ships and Smallcraft

Mystic Seaport Museum, Inc., Mystic, Connecticut

$15,000

Project in progress

Mystic Seaport Museum is developing a methodology to document large and small watercraft in three dimensions using a surveyor's total station and advanced surface modeling software. An electronic distance measuring machine manual will be published in 1999.

NCPTT Training Coordinator Frances Gale is responsible for this project.

79. Development of Non-Linear Documentation Strategies for Incorporating Computerized Solid Modeling in Historic Building Surveys

Texas A&M University, College Station, Texas

$15,000

Project in progress; anticipated completion Winter 1998-1999

Texas A&M is investigating the use of three-dimensional computer modeling techniques as an alternative to conventional linear, two-dimensional drawings for documenting historic structures. The final report is in preparation.

NCPTT Information Management Coordinator Mary Carroll is responsible for this project.

78. Digital Image Enhancements and Compositing of Plan View Geophysical Data Sets

Boston University, Boston, Massachusetts

$11,499

Project in progress; anticipated completion Winter 1998-1999

Boston University is exploring the use of computer processing and imaging techniques for analyzing data collected from a single archeological site using three complementary remote sensing methods: conductivity, electrical resistivity, and magnetic gradiometry. Survey work at Whistling Elk, South Dakota, an 11-acre Plains village, is completed. The densely sampled geophysical data is presently undergoing intensive processing and analysis to increase the potential for discovering cultural features in the subsurface record.

NCPTT Research Coordinator Mark Gilberg is responsible for this project.

77. Digital Videographic Imaging: Digital Recording, Preservation and Dissemination of Archeological Data

Anne Arundel County Trust for Preservation, Inc., Annapolis, Maryland

$15,000

Project in progress

New, affordable digital recording technologies hold great promise in archeological research through analysis, data preservation and information distribution. This study transfers the latest digital video technology to the archeological field for use in recording and analyzing highly stratified deposits and subsurface features at archeological sites. Project results include a growing video and still image archive; presentation at the Vernacular Architecture Forum meeting in Annapolis, Maryland, May 1998; and development of three-dimensional models from digital video images.

NCPTT Materials Research Program Manager Mary Striegel is responsible for this project.

76. Subsurface Acoustical Imaging Technology: Ground Penetrating Sonar

Scripps Institution of Oceanography, San Diego, California

$14,901

Project in progress; anticipated completion Winter 1998-1999

Scripps Institution of Oceanography is testing an improved technology for geophysical prospecting using an acoustic transmitting and receiving transducer that can rapidly collect data along the ground surface in a manner analogous to ground penetrating radar. To date, laboratory trials have yielded promising results indicating that Rayleigh or surface waves are the optimal mode of propagation for seismo-acoustic energy for imaging in shallow soil. Field trials are presently underway at the Controlled Archeological Test Site in Champaign, Illinois (see entry 16), where known cultural resources also will be mapped using ground penetrating radar. The use of acoustic and radar imaging technologies for identifying buried cultural resources will be compared and evaluated in light of field trial results.

NCPTT Research Coordinator Mark Gilberg is responsible for this project.

Analytical Facility Support

75. Facility Support for Enhanced Analytical Services (Phase 1 of three phases)

Williamstown Art Conservation Center, Williamstown, Massachusetts

$49,942

Project in progress; also see entry 98

Williamstown Art Conservation Center is presently offering an increased range of analytical services at a reduced cost to conservators and nonprofit institutions. Collection, processing, interpretation and archiving of FT-IR data has been streamlined, and made less costly through the acquisition of new FT-IR spectrometer software and new FT-IR spectral libraries. The cost to users, and the time required for sample photo-documentation, has been reduced substantially through acquisition of a new digital microscopy system. The number of conservators and non-profit institutions served has increased.

NCPTT Research Coordinator Mark Gilberg is responsible for this project.

Conference Support

74. Symposium on the Care and Preservation of Historic Vehicles

The Museums at Stony Brook, Stony Brook, New York

$12,591

Project in progress

The *Carriage Care and Preservation* symposium will be held November 1998, in Stony Brook, New York.

NCPTT Training Coordinator Frances Gale is responsible for this project.

73. The Conservation and Preservation of Tabby: A Symposium on a Historic Building Material in the Coastal Southeast

Georgia State Historic Preservation Office, Atlanta, Georgia

$10,580

Project in progress

Tabby is an historic building material comprised of shell, lime and sand that can be found in the coastal areas of Georgia, South Carolina, and Florida. Tabby resources are deteriorating and little is known about the long-term effects of various conservation techniques. This symposium brought together 40 scholars, craftsmen, archeologists, architects, conservators, state historic preservation office staff and scientists to discuss the state of scholarship in the field of tabby and to identify research needs for the preservation of tabby resources. The two-and-a-half day meeting in February 1997 at Jekyll Island, Georgia included presentations, discussion groups and a tour of tabby resources. Proceedings will be published in print and via Internet.

Also see *NCPTT Notes 25*, p. 7.

NCPTT Materials Research Program Manager Mary Striegel is responsible for this project.

72. *Teaching with Historic Places*: Setting a Course for the Future

National Park Service-National Register of Historic Places, Washington, DC

$11,460

Project in progress

The *Teaching with Historic Places* symposium was held in July 1998, in Washington, DC. A summary of recommendations will be available in January 1999.

NCPTT Training Coordinator Frances Gale is responsible for this project.

1997 PTTGrants

Publications Support

71. Conservation of Historic Brick Structures Monograph

Institute of Fine Arts, New York University, New York, New York

$15,000

Project completed; results published —

Baer, N.S., S. Fitz, and R.A. Livingston, editors. *Conservation of Historic Brick Structures: Case Studies and Reports of Research*. Dorset, United Kingdom: Donhead Publishing, Ltd., 1998.

Also see *NCPTT Notes* 23, p. 5.

NCPTT Materials Research Program Manager Mary Striegel was responsible for this project.

70. Review of US Policy for Protecting Submerged Cultural Resources Beyond the Three-Mile Limit

Boston University, Boston, Massachusetts

$14,935

Project in progress; anticipated completion Winter 1998-1999

Boston University is reviewing current US law on the protection of submerged cultural resources located beyond the three-mile limit. Legal and philosophical differences between US policy and international conventions will be discussed in the context of developing a more comprehensive national policy. The review of current US policy is completed and preparation of journal articles is underway.

NCPTT Information Management Coordinator Mary Carroll is responsible for this project.

69. A Review of Rock Art Conservation: Theory and Practice

American Rock Art Research Association, Tucson, Arizona

$8,700

Project in progress; anticipated completion Winter 1998-1999

The American Rock Art Research Association is reviewing the theory and practice of rock art conservation worldwide. Condition assessments, treatment methodologies, management practices, and the training of conservators will be discussed in the monograph.

NCPTT Information Management Coordinator Mary Carroll is responsible for this project.

Scene from **Walls of Stone**, *a training video; see entry 62*

68. A Review of Recent Advances in GIS Applications for Archeology

University of Chicago, Chicago, Illinois

$15,000

Project in progress; anticipated completion Winter 1998-1999

Argonne National Laboratory, through the University of Chicago, is reviewing the existing literature on Geographic Information Systems in archeology from both research and management perspectives. Although project start-up was delayed due to administrative problems, work is now underway.

NCPTT Information Management Coordinator Mary Carroll is responsible for this project.

1996 Preservation Technology and Training Grants

1996 PTTGrants

Training and Education

NCPTT Training Coordinator Frances Gale is responsible for these projects.

67. Historic Preservation Workshop for Planning and Preservation Commissioners

University of Georgia, Athens, Georgia

$28,270

Project completed

University of Georgia's Office of Preservation Services and the National Alliance of Preservation Commissions developed a model Historic Preservation Short Course for historic preservation and planning commissions, which was presented in September 1997, in Lafayette, Louisiana.

66. Hazards in Conservation Materials and Processes: Workshop and Technical Field Guide

RESTORE, New York, New York

$40,000

Project completed; results published —

Rossol, M. *RESTORE Technical Field Guide on the Health and Environmental Hazards Inherent in Architectural Restoration Materials and Processes*. New York, New York: RESTORE. 1998. [PTTPublications No. 1998-05]

65. Preserving Mechanical Systems: CD-ROM Correspondence Course

Belmont Technical College, St. Clairsville, Ohio

$37,920

Project completed; results published —

Belmont Technical College. *Mechanical Systems in Historic Buildings* (CD-ROM). St Clairsville, Ohio: Belmont Technical College. 1998. [PTTPublications No. 1998-20] Available January 1999.

64. Building Code Issues in Rehabilitation: Solutions and Precedents

California Preservation Foundation, Oakland, California

$38,178

Project in progress

California Preservation Foundation is compiling case studies that illustrate alternative building regulations and standards to facilitate restoration and adaptive re-use of historic buildings, for dissemination via Internet. Following their survey of California legislation, CPF will develop a database for accessing these materials.

63. Cultural Resources Protection: Training for Northern Nevada Tribes

Washoe Tribe of Nevada and California, Gardnerville, Nevada

$40,000

Project in progress

Protection and preservation of Native American cultural heritage were the subjects of training conducted by the Washoe Tribe in Carson City, Nevada, in May 1998. A follow-up seminar was held Carson City in September 1998.

62. A Training Video — *Restoring Dry-Stone Walls and Fences*

Kentucky Heritage Council, Frankfort, Kentucky

$24,082

Project completed; results published —

Kentucky Heritage Council (R. Tufnell, producer). *Walls of Stone: How to Build Drystone Walls and Rock Fences* (video). Lexington, Kentucky: The Drystone Masonry Institute of America, Inc. 1996. [PTTPublications No. 1996-01]

61. Historic Landscapes Workshops

The Alliance for Historic Landscape Preservation, New York, New York

$37,100

Project completed; a compilation of workshop proceedings will be published by Spring 1999.

1996 PTTGrants

Research

NCPTT Research Coordinator Dr. Mark Gilberg is responsible for these projects.

60. Using Three-Dimensional Ground Penetrating Radar to Locate and Identify Buried Archeological Features

University of Colorado, Boulder, Colorado

$39,860

Project completed; results published —

Conyers, L.B. "Acquisition, Processing and Interpretation Techniques for Ground Penetrating Radar Mapping of Buried Archaeological Sites," paper presented at *Seventh International Conference on Ground-Penetrating Radar*, University of Kansas, Lawrence, Kansas, May 27-30, 1998.

——. "GPR testing the American Southwest," paper presented at *Annual Meeting of Colorado Council of Professional Archaeologists*, Pueblo, Colorado, April 1998.

——, and C. M. Cameron. *Finding and Mapping Buried Archaeological Features in the American Southwest: New Ground-Penetrating Radar Techniques and Three-dimensional Computer Mapping*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-04]

——. "Finding Buried Archaeological Features in the American Southwest: New Ground-Penetrating Radar Techniques and Three-Dimensional Computer Mapping," *Journal of Field Archaeology* (in press).

Hall, A. "Slices of the past," *Scientific American Exhibit: Radar Archaeology*, June 22, 1998. (Also available at <www.sciam.com/exhibit/062298radar/index.html>)

Also see *NCPTT Notes* 26, p. 4.

59. Developing Comprehensive Testing Protocols for Protective Coatings for Silver Objects in Museum Collections

Corrosion and Materials Research Institute, Newark, Delaware

$39,814

Project completed; results published —

Reedy, C., R.A. Corbett, and M. Burke. "Electrochemical Tests as Alternatives to Current Methods for Assessing Effects of Exhibition Materials on Metal Artifacts," *Studies in Conservation* 43 (1998) 183-196.

58. A New Technique for Accurately Dating Prehistoric Rock Paintings

Texas A&M University, College Station, Texas

$39,954

Project completed; results published —

Armitage, R.A., M. Hyman, J. Southon, and M.W. Rowe. "Rock art image in Fern Cave, Lava Beds National Monument, California: not the A.D. 1054 (Crab Nebula) supernova," *Antiquity* 71 (1997) 715-720. [PTTPublications No. 1997-13]

——, and C. Barat. "Fern cave rock paintings at Lava Beds National Monument, California: Not the 1054 A.D. supernova" in *Proceedings of the Oxford V Conference* (in press).

Hyman, M., and M.W. Rowe. "Plasma extraction and AMS 14C dating of rock paintings," *Techne* 1997 (1997) 61-70. [PTTPublications No. 1997-14]

Hyman, M., K. Sutherland, R.A. Armitage, J.R. Southon, and M.W. Rowe. "Radiocarbon Analyses of Hueco Tanks Rock Paintings," *American Antiquity* (in press).

Mawk, E.J., and M.W. Rowe. "Effect of Water on Lower Pecos River Rock Paintings in Texas," *Rock Art Research 1998* 15, No.1 (1998) 12-16. [PTTPublications No. 1998-22]

Pace, M.F.N., M. Hyman, M.W. Rowe, and J.R. Southon, "Chemical Pretreatment on Plasma Extraction for C14 Dating of Pecos River Genre Rock Paintings," *American Indian Rock Art* 23 (1997) 1-9.

Also see *NCPTT Notes* 23, p. 4.

57. Developing Models for Parking and Pedestrian Circulation Design in Historic Downtowns

University of Kentucky, Lexington, Kentucky

$14,301

Project completed; project results undergoing review in preparation for publication.

See NCPTT *Notes* 25, p. 6.

56. Developing a Prototypical Historic Fire Risk Index to Evaluate Fire Safety in Historic Buildings

Fire Safety Institute, Middlebury, Vermont

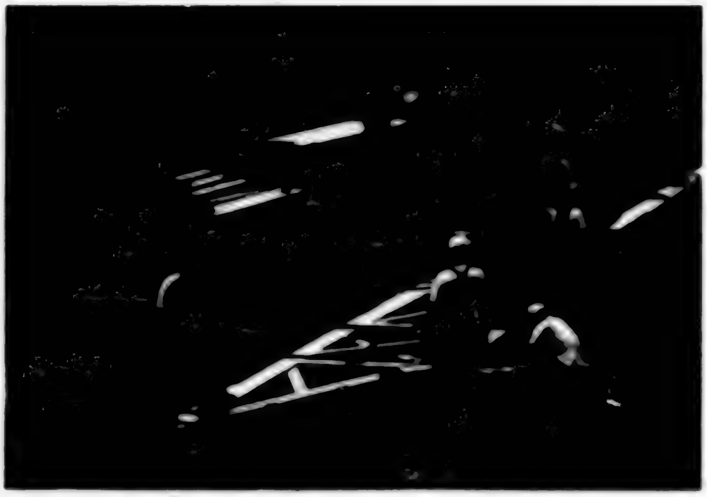
$38,496

Project completed; results published —

Watts, J.M. "Analysis of the NFPA fire safety evaluation system for business occupancies," *Fire Technology* 33 (1997). [PTTPublications No. 1997-09]

——. "Fire Risk Index for Heritage Buildings," *Fire Technology* 33, No.3 (1997) 276-282.

——, and M.E. Kaplan. *Performance-based Approaches to Protecting Our Heritage*. Natchitoches, Louisiana: NCPTT. 1997. [PTTPublications No. 1997-12]



Erecting a timber-framed building near Tyler, Texas; see entry 150

——. *Development of a Prototypical Historic Fire Risk Index to Evaluate Fire Safety in Historic Buildings*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-08]

55. Developing Standards and Procedures for Recording Courthouses Using Customized Digital Technologies: A Model for Statewide County Courthouse Digital Documentation

University of Texas, San Antonio, Texas

$39,754

Project in progress; anticipated completion Winter 1998-1999; results published —

Wattenburg, T. *A Procedural Manual for Digital Documentation of Large Groups of Similar Structures*, Historic Resources Imaging Lab, Texas A&M University. (CD-ROM to be released Winter 1998-1999)

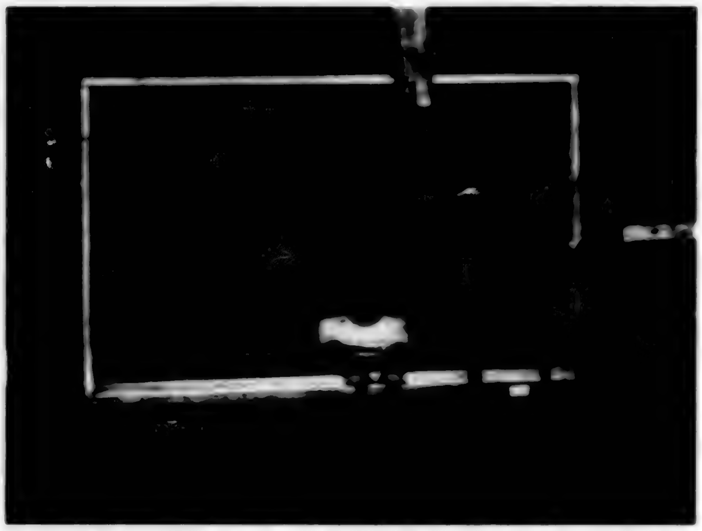
54. Using Aerial Photography to Document and Monitor the Condition of Prehistoric Earthen Structures

Society for American Archaeology, Washington, DC

$40,000

Project in progress; anticipated completion Winter 1998-1999.

The use of aerial photography as a quick, inexpensive means of recording changes over time in prehistoric earthen structures is being explored. Existing vertical and oblique aerial photographs are being used to document the state of preservation of known prehistoric earthen structures in the lower Mississippi River valley. As a consequence of intensive agriculture, however, most of the earthen structures examined do not possess sufficient topographical expression to yield useful results. Alternative analytical techniques are being explored.



Preserving vernacular earthen architecture; see entry 36

1996 PTTGrants

Information Management

NCPTT Information Management Coordinator Mary Carroll is responsible for these projects.

53. Maritime Cultural Resources: Developing and Sharing an Expandable Online Database

Ohio State Historic Preservation Office, Columbus, Ohio

$40,000

Project completed; results published —

Ohio Historical Society and North American Maritime Consortium, Inc. *Standardisation in Historical Information and Interpretation System Demonstration Project*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-10] Also available at <www.zone-2.com/name/shipsinfo.html>.

52. Providing Public Access to Hawaii's Preservation Information via World Wide Web

Hawaii State Historic Preservation Office, Honolulu, Hawaii

$9,500

Project completed; results published —

Komori, E. <mano.icsd.hawaii.gov/~ekomori> 1998. [PTTPublications No. 1998-12]

51. A Creole Heritage Preservation Guide

St. Augustine Historical Society, Natchitoches, Louisiana

$30,040

Project completed; results published —

Colson, J. *"Getting it Out of the Attic" — A Creole Preservation Guide*. Natchitoches, Louisiana: NCPTT. 1997. [PTTPublications No. 1997-10]

50. Computerizing Maryland's Historic Site Records

Maryland State Historic Preservation Office, Crownsville, Maryland

$39,820

Project completed; results published —

Maryland Historical Trust. <www.ari.net/mdshpo/gisncptt.html> 1998. [PTTPublications No. 1998-21]

49. UVa Law Library Collection: Developing an Internet Database for Preservation Law

University of Virginia Law School Foundation, Charlottesville, Virginia

$27,937

Project in progress; anticipated completion Winter 1998-1999.

The University of Virginia Law School Foundation is preparing and making available via Internet three special collections it has developed on preservation law and the texts of *Preservation Law Updates*.

48. Arizona's Cultural Resource Database: Developing a Master Plan

Arizona State Museum, Tucson, Arizona

$34,547

Project completed; results published —

Grindell, B. and R. Karl. *Computerising Arizona's Cultural Resource Files: Implementation Plan*. Natchitoches, Louisiana: NCPTT. 1997. [PTTPublications No. 1997-11] Also available at <archaeology.la.asu.edu/azsite/grants/index.html> (For information about the overall AZSITE project, of which this PTTGrants project is a part, see <archaeology.la.asu.edu/azsite/grants/Exec%20Summary.html>.)

47. Internet Access to State-by-State Preservation Law

National Council of State Historic Preservation Officers, Washington, DC

National Conference of State Legislatures, Denver, CO

$40,000

Project completed; results published —

National Conference of State Historic Preservation Officers and National Conference of State Legislatures. <www.ncsl.org/programs/arts/statehist_intro.htm>. 1998. [PTTPublications No. 1998-13]

Shrimpton, J. *State Historic Preservation Legislation Database*. (report) Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-13]

1995 PTTGrants

Training and Education

NCPTT Training Coordinator Frances Gale is responsible for these projects.

46. Preservation Skills Training Workshop Series

Historic Windsor, Inc., Windsor, Vermont

$40,000

Project completed

Historic Windsor's Preservation Institute for the Building Crafts sponsored a series of hands-on workshops for professionals in the building crafts in Natchitoches, Louisiana in 1996, and in New Orleans and Baton Rouge, Louisiana in 1997.

45. Preserving Our Endangered Past

Slater Mill Historic Site, Pawtucket, Rhode Island

$19,813

Project completed

A workshop series on preserving and conserving buildings, textiles, furniture, photographs and paper was conducted at Slater Mill Historic Site in 1996.

44. A Multimedia Approach to Training Staff in Simple Book Repair

Dartmouth College, Hanover, New Hampshire

$6,290

Project completed; results published —

Preservation Services Department of Dartmouth College Library. <www.dartmouth.edu/~preserve/tofc.html>. 1996. [PTTPublications No. 1995-02]

Dartmouth College (B. Sagraves, author). *Methodology Report for a Multimedia Approach to Training Staff in Simple Book Repair*. Natchitoches, Louisiana: NCPTT. 1997. [PTTPublications No. 1997-26]

43. *Diagnosing Moisture in Historic Buildings* Workshop

The Friends of Meridian Hill, Washington, DC

$40,000

Project completed

Diagnosing Moisture in Historic Buildings was held in Washington, DC in May 1996. The symposium contributed to the development of the following *Preservation Brief* —

National Park Service. *Preservation Briefs* series, No. 39 ("Holding the Line: Controlling Unwanted Moisture in Historic Buildings"). National Park Service (n.d.). (Also available at <www2.cr.nps.gov/tps/briefs/brief39.htm>)

42. Training for Instructor's Certificate in the Building Trades

University of Vermont, Burlington, Vermont

$33,401

Project completed; results published —

University of Vermont Historic Preservation Program. *Preservation Educution Skills for Building Trades Instructors: Project Summary Report*. Burlington, Vermont: University of Vermont. 1996. [PTTPublications No. 1996-22]

——. University of Vermont Historic Preservation Summer Institute. *Preservation Education Skills for Building Trades Teachers Resource Directory*. Burlington, Vermont: University of Vermont. 1996. [PTTPublications No. 1996-23]

——. *Preservation Education Skills for Building Trades Teachers Resource Directory Section II*. Burlington, Vermont: University of Vermont. 1996. [PTTPublications No. 1996-24]

41. A Training Video — *Lead-Based Paint Abatement in Historic Structures*

Maryland State Historic Preservation Office, Crownsville, Maryland

$19,560

Project completed; results published —

Maryland State Historic Preservation Office. *The Best of Both Worlds: Lead Hazard Reduction in Historic Buildings* (video). Crownsville, Maryland: MD-SHPO. 1997. [PTTPublications No. 1997-15]

40. A Training Video — *Culture Shock: Fire Protection for Historic and Cultural Property*

Boston University, Boston, Massachusetts

$40,000

Project completed; results published —

Boston University (R. Candee, producer). *Culture Shock: Fire Protection for Historic and Cultural Property* (video). Boston, Massachusetts: Boston University. 1995. [PTTPublications No. 1995-01]

39. American Indian Voices in Preservation Training

Crow Canyon Archaeological Center, Cortez, Colorado

$19,320

Project completed; results published —

King, T.F. *Historic Preservation Training By and For Indian Tribes: Report of a Workshop on Tribal Needs and Priorities*. Natchitoches, Louisiana: NCPTT. 1996. [PTTPublications No. 1996-11]

38. A Regional Seminar in Landscaping for Historic Properties

Southern Cultural Heritage Foundation, Vicksburg, Mississippi

$6,850

Project completed

Southern Cultural Heritage Foundation conducted a "Landscaping to Support Historic Sites" seminar in Spring 1996, and a workshop on planning, implementing and maintaining appropriate landscapes for historic properties in Spring 1997.

37. Three-Dimensional Coordinate Measurement of Historic Artifacts

Mystic Seaport Museum Inc., Mystic, Connecticut

$23,821

Project completed; results published —

Starr, Mark. "Half hull ship models: Unlocking historic ships models from our past," *CRM* 20, No. 7 (1997) 30-31.

——. "Measuring Mystic Seaport's half-model collection the electronic way," *The Log of Mystic Seaport* 48, No. 3 (1996).

36. Investing in the Past: Informed Decision Making for Historic Preservation in the Private Sector

Wilkinson County Museum, Woodville, Mississippi

$19,833

Project completed

Wilkinson County Museum conducted a one-day seminar on preservation methodologies and strategies for historic property owners in September 1996, in Woodville.

35. Youth Training in Vernacular Earthen Architecture and Associated Cultural Traditions

Cornerstones Community Partnerships, Santa Fe, New Mexico

$39,868

Project completed; results published —

Zook, Barbara and Michael Kramer. "Training youth in vernacular earthen architecture and associated cultural traditions," *CRM* 20, No. 7 (1997) 28-30.

Also see *NCPTT Notes* 17, p. 7.

34. Preservation Training for Local Governments

Georgia Department of Archives and History, Atlanta, Georgia

$40,000

Project completed; results published —

Georgia Department of Archives and History. *Technical Leaflets* series ("Preservation Basics for Paper-Based Records," "Disaster Preparedness," "The Storage Environment," "Machine Readable Records," "Selecting an Off-Site Records Facility" and "Reformatting Records"). Atlanta, Georgia: GDAH. 1997. [PTTPublications No. 1997-02]. Also available at <www.sos.state.ga.us/archives/technical.htm>.

33. Preparing a Heritage Education Teacher's Manual Using Historic Landscapes

Morgan County Landmarks Society, Madison, Georgia

$6,937

Project in progress

For this project, Morgan County Landmarks Society researched historic gardens of Morgan County in primary sources at Morgan County Archives, Madisonian Archives, and the Georgia state archives. The resulting supplement to the Morgan County Heritage Education Teacher's Manual is nearing completion.

32. Construction Technology Manual for Historic Buildings in Puerto Rico and the Caribbean

Caribbean Heritage, Guaynabo, Puerto Rico

$34,830

Project completed; results published —

Del Cueto, Beatriz. *A Manual on Conservation Methodology for Historic Buildings and Structures*. Natchitoches, Louisiana: NCPTT. 1997. [PTTPublications No. 1997-07]

Also see *NCPTT Notes* 25, p. 8.

Research

NCPTT Research Coordinator Mark Gilberg was responsible for these projects.

31. Investigating the Use of Silicones for the Treatment of Wet or Waterlogged Organic Materials

Texas A&M University, College Station, Texas

$39,641

Project completed; results published —

Perkins, S. "Island Waters Yield a Trove of Artifacts, History and Mystery," *Science News* 153 (1998) 24-26.

Wright, G. "Decline and Fall," *New Scientist*, October 4, 1997, 33-36.

30. Investigating the Use of Turn-of-the-Century Whitewares as Economic Indicators for Evaluating Sites for National Register Eligibility

Ohio State Historic Preservation Office, Columbus, Ohio

$10,394

Project completed; results published —

Manson, J., and D.M. Snyder. *Evaluating Sites with Late Nineteenth and Early Twentieth Century Components for Eligibility in the National Register of Historic Places: Using Turn of the Century Whitewares as Economic Indicators in Assessing Collections and Developing Contexts*. Natchitoches, Louisiana: NCPTT. 1996. [PTTPublications No. 1996-10]

Also see *NCPTT Notes* 17, p. 4.

29. Investigating Relationships between Heritage Preservation and Economic Development in Rural Areas Using the Bayou Teche Heritage Corridor as a Model

Louisiana State University, Baton Rouge, Louisiana

$39,978

Project completed; results published —

Kennedy, C.B. <www.lhin.lsu.edu/>. 1997. [PTTPublications No. 1997-23]

——. "Historic Preservation Online: The Louisiana Heritage InfoNet-Part 1," *Preservation in Print* 24 (1997) 10-11.

28. Field Testing Remote Sensing Systems for the Protection of Historic and Prehistoric Sites and Monuments from Vandalism

University of California, Riverside, California

$40,000

Project completed; results published —

University of California, Riverside, California. *HIPROTECT at Joshua Tree National Park*. Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-18]

27. Researching the Use of Oral Histories to Interpret African-American Theaters in the South

City of Macon, Macon, Georgia

$39,988

Project in progress; final report in preparation

26. Designing Protective Coating Systems for Outdoor Bronze Sculpture and Ornamentation (Phase 1 of three phases)

National Gallery of Art, Washington, DC

$ 37,500

This is phase 1 of a multi-year project; also see entries 82 and 101. Phase 1 results published —

Brostoff, L., and R. de la Rie. *Research into Protective Coating Systems for Outdoor Bronze Sculpture and Ornamentation.* Natchitoches, Louisiana: NCPTT. 1997. [PTTPublications No. 1997-03]

——. "Conservation Treatments: Methods, Options and Research," paper presented to *The Conservation of Outdoor and Indoor Sculpture and Monuments Through a Conservator's Eye* workshop, Brookgreen Gardens, Murrells Inlet, South Carolina, August 21-23, 1997. (Also see entry 162)

25. Developing Agent-Based Computer Simulations for Identifying and Interpreting Archeological Sites

Washington State University, Pullman, Washington

$35,463

Project completed; results published —

Kohler, T. "The richness of the world," *Universe* (Spring 1997) 2-6.

24. Evaluating the Impact of Revegetation on the Preservation of Archeological Sites

University of Mississippi, University, Mississippi

$20,000

Project completed; results published —

Thorne, R.M., R.W. Walbauer, and P. Nickens. *Archeological site revegetation, organochloride based pesticides, PCB's and their relationship to resource preservation and protection.* Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-15]

23. Preparing a Directory of Chemical Spot Tests for Materials Characterization

University of Arizona, Tucson, Arizona

$28,310

Project completed; results published —

Odegaard, N., W. Zimmt, S. Carroll, and D. Spurgeon. *A Directory of Spot Tests for Materials Conservation.* (To be published by University of Arizona)

22. Analyzing the Effect of an Indoor Pollutant on Traditional Easel Paintings

Indiana University Art Museum, Indiana University, Bloomington, Indiana

$38,815

Project completed; results published —

Williams, R.S., and Canadian Conservation Institute. *Analytical Procedures for DEAE in DEAE [diethylaminoethanol] Contaminated Paintings.* Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-16]

——. *Infrared Spectroscopic Analysis of Varnish and Paint Samples from IUAM Paintings for the Presence of DEAE.* Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-17]

21. Investigating the Biogeochemical Relationship between Prehistoric Rock Paints and Natural Rock Accretions

Newberry College, Newberry, South Carolina

$29,070

Project completed; results published —

Russ, J. "Origin of the Whewellite-rich rock crust in the Lower Pecos region of Southwest Texas and its significance to Paleoclimate reconstructions," *Quaternary Research* 46 (1996) 27-36, [PTTPublications No. 1996-03]

——, W.D. Kaluarachchi, L. Drummond, and H.G.M. Edwards, "The Nature of Whewellite-Rich Rock Crust Associated with Pictographs in Southern Texas," *Studies in Conservation* (in press).

20. Analyzing the Economic Impact of Historic Preservation in our Nation's Most Densely Populated State

New Jersey Historic Trust, Trenton, New Jersey

$40,000

Project completed; results published —

Hawkins, H., and T. Hemphill. "The Overall Economic Benefits of Historic Preservation Clearly Show that it is an Important Pump Primer for the State's Economy," *New Jersey Building Contractor* 3 (1997) 46-50.

Listokin, D., and M. Lahr. *Economic Impacts of Historic Preservation.* Trenton, New Jersey: New Jersey Historic Trust. 1997. (Also available at <www.state.nj.us/dep/njht/features.htm#impactstudy>)[PTTPublications No. 1997-05]

—— (Center for Urban Policy Research, Rutgers-The State University of New Jersey). *Economic Impacts of Historic Preservation.* Vol. III, Trenton, New Jersey: Task Force on New Jersey History. 1997.

——, and B. Listokin. "Contributions of Historic Preservation to Housing and Economic Development," *Housing Policy Debate* (in press).

New Jersey Historic Trust. Partners in Prosperity. *The Economic Benefits of Historic Preservation in New Jersey* (booklet). Trenton, New Jersey: New Jersey Historic Trust. 1998. [PTTPublications No. 1998-25]

Also see *NCPTT Notes* 22, p. 9.

19. Documenting the Movement of Historic Objects Using Advanced Computer Simulation Technologies

National Preservation Institute, Washington, DC

$36,000

Project completed; results published --

Jones, O., and J. Massey. *The Application of Advanced Computer Simulation and Visualization Technology to Enhance Cultural Resources Documentation* (video). Natchitoches, Louisiana: NCPTT. 1997. [PTTPublications No. 1997-06]

Massey, J.C., and F.M. Robinette. "Adapting digital technology used in ship design to cultural resources," *CRM* 19, No. 9 (1996) 31-32.

Gilberg, M. "Computer Model Assists Recovery of USS Monitor," *Headquarters Heliogram*, July/September 1998.

Also see *NCPTT Notes* 21, p. 1.

18. Developing a Conservation Inventory of Frank Lloyd Wright Structures

Frank Lloyd Wright Building Conservancy, River Forest, Illinois

$30,000

Project completed; results published —

DeLong, D. "Conserving the legacy of Frank Lloyd Wright," *Frank Lloyd Wright Conservancy Newsletter* (submitted for publication; copies available through Sara Ann Briggs at the Frank Lloyd Wright Building Conservancy; telephone 708/848-1141).

17. Field Testing a Non-Invasive, Non-Toxic Baiting System for Protecting Historic Structures from Subterranean Termites

University of Florida, Ft. Lauderdale, Florida

$40,000

Project completed; results published —

Su, N-Y. "A new method to protect historic buildings and structures form subterranean termites," *CRM* 20, No. 7 (1998) 26-27.

——, "Protecting Historic Buildings and Structures from Termites," *Journal of the American Institute for Conservation* (in press).

16. Designing a Controlled Archeological Test Site for Evaluating Non-Invasive Technologies for Archeological Site Assessment

US Army Construction Engineering Research Laboratories, Champaign, Illinois

$37,250

Project completed; results published —

Isaacson, J., et al. "Controlled Archaeological Test Site Facility for Training and Research in Archaeophysics," *Journal of Field Archaeology* (in press).

Pendrick, D. "Dig this," *New Scientist* 159, No 2152 (19 September 1998) 34-37. (Also see entry 108)

1994 Preservation Technology and Training Grants

1994 PTTGrants

Training and Education

NCPTT Training Coordinator Frances Gale was responsible for these projects.

15. Conducting a Native Americans and Archeology Workshop

Arizona Archaeological Council, Kykotsmovi, Arizona

$6,740

Project completed; results published —

Anyon, R., T.J. Ferguson, L. Jackson, and L. Lane. "Working Togrther — Native American Oral Traditions and Archaeology," *SAA Bulletin* 14, No.2 (March/April 1996) 14-16.

Anyon, R., T.J. Ferguson, L. Jackson, L. Lane, and P. Vicenti. "Native American Oral Tradition and Archaeology: Issues of Structure, Relevance, and Respect," from *Native Americans and Archaeologists: Stepping Stones to Common Ground* (Swidler, N., K. Dongoske, R. Anyon, and A. S. Downer, ed.). Walnut Creek, California: Altamira Press. 1997. 77-87.

Arizona Archaeological Council (S. Urban, author). *Arizona Archaeological Council's Native Americans and Archaeology Workshop* (proceedings). Natchitoches, Louisiana: NCPTT. 1994. [PTTPublications No. 1994-02]

14. Conducting Workshops for Methods of Archeological Site Discovery and Evaluation

Society for American Archaeology, Washington, DC

National Park Service – Archeology and Ethnography, Washington, DC

$39,600

Project completed; results published —

Society for American Archaeology. *Readings in Site Discovery and Site Evaluation.* Presentation at Annual Meeting for the Society of American Archaeology, May 3-7, 1995, Minneapolis, Minnesota. 1995. [PTTPublications No. 1995-14]

13. A Training Video — *Connections: Preserving America's Landscape Legacy*

American Society of Landscape Architects, Washington, DC

$20,000

Project completed; results published —

American Society of Landscape Architects and The Garden Conservancy. *Connections: Preserving America's Landscape Legacy* (video). Natchitoches, Louisiana: NCPTT. 1996. [PTTPublications No. 1996-02]

12. Designing an Interactive Multimedia Training Program for Advanced Mapping Technologies

Bureau of Land Management, Phoenix, Arizona

$40,000

Project completion is delayed.

11. Preservation Resource Guide for Public Works Managers

American Public Works Association, Kansas City, Missouri

$39,200

Project completed; results published —

Sypolt, L. *Preservation Resource Guide for Public Works Managers.* Natchitoches, Louisiana: NCPTT. 1998. [PTTPublications No. 1998-01]

Also see *NCPTT Notes* 23, p. 3.

10. Editing Proceedings of *The Techniques and Uses of Garden Archaeology* Conference

United States Committee/International Council on Monuments and Sites, Washington, DC

$7,500

Project completed; results published —

Jacques, D., ed. "The Techniques and Uses of Garden Archaeology: Papers from an ICOMOS/English Heritage conference," *Journal of Garden History* 7, No. 1 (1997).

Research 1994 PTTGrants

NCPTT Research Coordinator Mark Gilberg was responsible for these projects.

9. Developing a Low-Cost Photogrammetric Data Archival System

University of Arkansas, Fayetteville, Arkansas

$37,428

Project completed; results published —

Gisiger, A., E.S. Cooper, and Y. Yuan. "Softcopy photogrammetry applied to the archiving of archaeological artifacts," *Proceedings of the ASPRS/ACSM Annual Convention and Exhibition, American Society for Photogrammetry and Remote Sensing*, 1 (1996) 501-511.

——, and F.W. Limp. *Development and Implementation of a Rapid, Low Cost Photogrammetric Data Archival System for Artifact and Osteological Inventory*. Natchitoches, Louisiana: NCPTT. 1996. [PTTPublications No. 1996-05]

Also see *NCPTT Notes* 16, p. 4.

8. Developing Guidelines for Allowable Temperature Fluctuations in Museums and Historic Properties

Conservation Analytical Laboratory, Smithsonian Institution, Washington, DC

$39,779

Project completed; results published —

Mecklenberg, M. "Fiber composites in infrastructure," *Proceedings of the First International Conference on Composites in Infrastructure*. (Saadatmanesh, H., and M.R. Ehsani, ed.) University of Arizona, Tucson, Arizona (1996).

——. "Technical considerations for the transport of panel paintings," *Symposium on the Structural Conservation of Panel Paintings* (in press).

Also see *NCPTT Notes* 21, p. 3.

7. Investigating the Effectiveness of Protective Glazing for Historic Stained Glass Windows

Inspired Partnerships, Chicago, Illinois

$37,254

Project completed results published —

Anon. "The history of protective glazing," *Stained Glass* 92 (1996) 306-316.

——. "Protective glazing for stained glass windows," *Stained Glass* 91 (1996) 186-187, 226-235.

——. "Stained glass protection — Is it really worth it?" *Amazing Space* 3 (1997).

——. "Through a glaze darkly — Congregations don't see many savings," *Comfort & Light Newsletter* 59 (Summer 1995) 2.

Krueger, B., N.A. Vogel, R. Achilles, A.J. Femenella, R. Pieper, A. Rudin, S. Reilly, and W. Simon. *Protective Glazing*. Natchitoches, Louisiana: NCPTT. 1996. [PTTPublications No. 1996-06]

Rudin, A., and L. Spielvogel. "Modeling the energy performance of glazing systems over stained glass," *Heating, Piping and Air Conditioning* (submitted for publication).

Vogel, N.A. "Higher standards needed for protective glazing," *Traditional Building* 10 (1997) 80, 130.

6. Developing Efficient Techniques for Analyzing Blood Residues on Tools from Archeological Sites

Conservation Analytical laboratory, Smithsonian Institution, Washington, DC

$39,779

Project completed results published —

Wilson, A., N. Tuross, and M. J. Wachowiak, "Blood Residues on Archaeological Objects: A Conservation Perspective," in *Archaeological Conservation and its Consequences*, Preprints of the Contributions to the Copenhagen Congress, August 26-30, 1996 (Roy, A., and P. Smith, ed.) 1997, 213-217.

5. Developing Methods and Technologies for Preserving Woody Plants in Historic Landscapes

Arnold Arboretum, Harvard University, Cambridge, Massachusetts

$40,000

Project completed

4. Investigating Improvements of Existing Heating and Air Conditioning Systems in Historic Structures

New York State Historic Preservation Office, Waterford, New York

$40,000

Project completed

3. Investigating the Preservation of Historic Carved Sandstone Buildings in Marine Environments

Historic Preservation Commission, Monterey, California

$31,925

Project completed; results published —

Preusser, F., E.E. Kimbro, A. Crosby, J. Twilley, C.A. Simpson-Smith, R. Edwards, and J. Nolan. *Deterioration and Preservation of Porous Stone, Royal Presidio Chapel, Monterey, California*. Monterey, California: Historic Preservation Commission. 1996. [PTTPublications No. 1996-04]

2. Developing a Database for the Study of 20th Century Building Materials

National Council for Preservation Education, Ithaca, New York

$40,000

Project completed

1. Testing the Energy Performance of Historic Windows in Cold Climates

Vermont State Historic Preservation Office, Montpelier, Vermont

$40,000

Project completed; results published —

James, B. "Testing the Energy Performance of Historic Windows in a Cold Climate" (master's thesis). Burlington, Vermont: University of Vermont. 1997. [PTTPublications No. 1997-16]

——, and B. James, "Creating Windows of Energy-Saving Opportunity," *Home Energy* 14, No. 5 (1997) 13-18.

——, S. Flanders, and D. Hemenway. *Testing the Energy Performance of Wood Windows in Cold Climates — A Report to The State of Vermont Division for Historic Preservation, Agency of Commerce and Community Development*. Natchitoches, Louisiana: NCPTT. 1996. [PTTPublications No. 1996-08]

Also see *NCPTT Notes* 15, p. 5.

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The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and to honor our trust responsibilities to tribes.

National Park Service
The National Park Service preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education and inspiration of this and future generations. The Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

National Center for Preservation Technology and Training
The National Center for Preservation Technology and Training promotes and enhances the preservation of prehistoric and historic resources in the United States for present and future generations through the advancement and dissemination of preservation technology and training.

NCPTT, created by Congress, is an interdisciplinary effort by the National Park Service to advance the art, craft and science of historic preservation in the fields of archeology, historic architecture, historic landscapes, objects and materials conservation, and interpretation. NCPTT serves public and private practitioners through research, education and information management.

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